Appendix A: Assessment (Pre/Posttest)

First Name & Last Initial _____

Date _____

Teacher _____

This exercise will help us learn how you think about algebra. Please do your best to complete all the questions.

If you don't know an answer, you may guess or write "I don't know". Please don't leave any questions blank – we want to know how much you had time to try.

If you make a mistake, please lightly cross out the work, but do not erase it.

Each section is timed. If you finish a section early, you may go ahead to the next section. You may not go back, even if you have extra time later. Once you finish a page, please move to the next page and do not look back.

Thank you for doing your best work on this exercise.

Part I. *You have 12 minutes to solve the following 8 equations. Try to use fast (and correct) ways to solve the problems so you can finish as many as possible.*

Show all your work.

1) $3(h + 2) + 4(h + 2) = 35$

2) $\frac{1}{2}(x - 1) = 10$

3) $5(y - 4) = 3(y - 4) + 20$

4) $\frac{3m}{5} ! 2 = \frac{7}{5}$

5) $3(2x + 3x - 4) + 5(2x + 3x - 4) = 48$

6) $2(x + 3) + 5(x + 3) = 4(x + 3)$

7) A formula for the perimeter of a rectangle is $P = 2(b + h)$, where b stands for the length of the base and h stands for the height. Solve the equation for h so you could find the height if you were given both the perimeter and the length of the base.

8) An exchange student wants to know the temperature in degrees Celsius (C), but in the U.S., we use degrees Farenheit (F). To help her, solve this formula for C: $F = \frac{9}{5}C + 32$

Part II. *You have 6 minutes to complete #7 and #8. Solve each equation 3 DIFFERENT ways using algebra (do not use guess-and-check).*

7a) $0.5(d + 3) = 10$

Way 1	Way 2	Way 3
$0.5(d + 3) = 10$	$0.5(d + 3) = 10$	$0.5(d + 3) = 10$

7b) Which of your ways do you think is easiest and fastest?

___Way 1 ___Way 2 ___Way 3 ___No way is easiest

8a) $7(y + 1) = 4(y + 1) + 6(y + 1)$

Way 1
$7(y + 1) = 4(y + 1) + 6(y + 1)$

Way 2
$7(y + 1) = 4(y + 1) + 6(y + 1)$

Way 3
$7(y + 1) = 4(y + 1) + 6(y + 1)$

8b). Which of your ways do you think is easiest and fastest?

___Way 1 ___Way 2 ___Way 3 ___No way is easiest & fastest

STOP. Wait for directions as a class.

Mental Math

Practice: _____

a) _____

b) _____

Part III. *You have 10 minutes to complete #9 – #16.*

For #9 & 10, decide whether each listed step COULD be done first. Circle YES if the step could be done first and NO if the step could NOT be done first.

9) $2(x + 1) + 4 = 12$

Is it ok to **combine like terms** first?	YES	NO
Is it ok to **distribute** across parentheses first?	YES	NO
Is it ok to **subtract** the same quantity on both sides first?	YES	NO
Is it ok to **divide** by the same quantity on both sides first?	YES	NO

10) $15(x + 3) + 5(x + 3) = 10(x + 3) + 20$

Is it ok to **combine like terms** first?	YES	NO
Is it ok to **distribute** across parentheses first?	YES	NO
Is it ok to **subtract** the same quantity on both sides first?	YES	NO
Is it ok to **divide** by the same quantity on both sides first?	YES	NO

For # 11 & 12, the first step a student used to solve the equation is shown.

11) Adam's first step:

$$2(s + 3(s - 1)) = 18$$
$$s + 3(s - 1) = 9$$

a. What step did Adam use to get from the first line to the second line?

a. Combine like terms
b. **Distribute** across parentheses
c. **Subtract** the same quantity on both sides
d. **Divide** by the same quantity on both sides

b. Do you think this is a good way to start this problem? Circle one:
(a) Very good way (b) OK, but not a very good way (c) Not OK

Explain your reasoning

c. For which of these equations would it be good to use Adam's way to start the problem?

a. $4(y + 3) = 11$
b. $4(y + 6) = 32$
c. $5(x + 2) + 7 = 20$
d. none of the above

12) Amy's first step

$$5(x + 3) + 6 = 5(x + 3) + 2x$$

$$6 = 2x$$

a. What step did Amy use to get from the first line to the second line?

a. **Distribute** across parentheses
b. **Subtract** the same quantity on both sides
c. **Divide** by the same quantity on both sides
d. **Multiply**

b. Do you think this is a good way to start this problem? Circle one:
(a) Very good way (b) OK, but not a very good way (c) Not OK

Explain your reasoning

c. For which of these equations would it be good to use Amy's way to start the problem?

a. $6(x + 4) + 20 = 8(x + 4)$
b. $10x = 11(x + 1)$
c. $15(y + 23) + 40 = 16(y + 30)$
d. none of the above

13) Which of these is equivalent to (the same as)
$(m + 2) + (m + 2) + (m + 2) + (m + 2)$? Circle your answer.

a. $m + 8$
b. $4m + 2$
c. $m^4 + 8$
d. $4(m + 2)$
e. none of the above

14) Which of the following is a like term to (could be combined with) $\mathbf{8}\boldsymbol{k}$?

a. $4k$
b. 8
c. $8m$
d. $3(k + 1)$
e. a and c

15) Which of the following is a like term to (could be combined with) $\mathbf{7(}\boldsymbol{j}\mathbf{+ 4)}$?

a. $7(j + 10)$
b. $7(p + 4)$
c. j
d. $2(j + 4)$
e. a and d

16) **Without solving each equation**, which of the following equations are equivalent to (will have the same answer as) the equation: $32(x - 12) = 96$

a. $32x - 12 = 96$
b. $x - 12 = 96 - 32$
c. $16x - 16 \cdot 12 = 48$
d. $16x - 6 = 48$
e. $\frac{32(x - 12)}{32} = \frac{96}{32}$
f. c & e

17) *Look at this pair of equations.* ***Without solving the equations,*** *decide if these equations are equivalent (have the same answer)*

$34 = 8(x + 1) + 6(x + 1)$

$34 = 14(x + 1)$

a. YES
(same answer)

b. NO
(different answer)

c. CAN'T TELL
without doing the math

<note, choice on this combine like term item has one of highest intra-item correlations, although explanation quality does not>

18) *Look at this pair of equations.* ***Without solving the equations,*** *decide if these equations are equivalent (have the same answer) and explain your reasoning.*

$98 = 21x$
$98 + 2(x + 1) = 21x + 2(x + 1)$

a. YES
(same answer)

b. NO
(different answer)

c. CAN'T TELL
without doing the math

Explain your reasoning:

Appendix B: ASSISTment Intervention

Problem Set "Equation Solving Rittle Johnson" id:[9854]

1) Assistment #74514 "74514 - Welcome"

A) Welcome to our new design on practicing equation solving.

Over the course of this week you will be seeing a lot of Assistments that look like this:

Eric's Solution		**Alice's Solution**	
2x + 4 = 10		4x - 8 = 12	
2x = 6	Subtract __(1)__on both	x - 4 = 3	Divide __(3)__on Both
x = 2	Divide __(2)__on both	x = 7	Add __(4)__on both

Fill in (1)

The assistment shows how Eric and Alice each solved an algebra problem. Their problems may or may not be the same.

This example asks you to "Fill in (1)." You must fill in the blank with a "(1)" on it: "Subtract _____on both"

"(1)" has been colored red to help you find it.

The answer to this problem is **4** because Eric subtracts 4 from each side of his equation.

Multiple choice:

✓ I have read and understand these instructions.

B) Another thing about this problem set that is different is that you will be working on it over 3 days.

At the end of one day's work you will be told that you are done for that day and should start working again the next day. Your teacher may give you more instructions so pay close attention.

You will see a picture of fireworks when you finish each day. When you see them stop working on the problem set and come back the next day.

Multiple choice:

✓ I have read the explanation of this problem set.

2) Assistment #75536 "75536 - 62675 - 60029 - Rittle-Johnson Reproduction"

A)

Nathan's Solution		**Laura's Solution**	
5(h-2) = 10		7(z-3) = 14	
5h-10 = 10	Distribute _5_	7z-21 = 14	Distribute __(3)__
5h = 20	Add__(1)__on Both	7z = 35	Add __(4)__on both
h = 4	Divide __(2)__on both	z = 5	Divide __(5)__on both

Fill in (1)

Algebra:

✓ 10

Hints:

There is no tutoring for this problem. The next hint will reveal the solution.

Enter: 10

B)

Nathan's Solution		**Laura's Solution**	
5(h-2) = 10		7(z-3) = 14	
5h-10 = 10	Distribute _5_	7z-21 = 14	Distribute __(3)__
5h = 20	Add__(1)___on Both	7z = 35	Add __(4)___on both
h = 4	Divide __(2)___on both	z = 5	Divide __(5)___on both

Fill in (2)

Algebra:

✓ 5

Hints:

There is no tutoring for this problem. The next hint will reveal the answer.

Enter: 5

C)

Nathan's Solution		**Laura's Solution**	
5(h-2) = 10		7(z-3) = 14	
5h-10 = 10	Distribute _5_	7z-21 = 14	Distribute __(3)_
5h = 20	Add__(1)___on Both	7z = 35	Add __(4)___on both
h = 4	Divide __(2)___on both	z = 5	Divide __(5)___on both

Choose what best answers (3)

Multiple choice:

✓ 7(z-3)

✗ 7(z+3)

✗ 14(z-3)

✗ z(z-3)

✗ z(7-3)

✗ -7

✗ -3

D)

Nathan's Solution	**Laura's Solution**

5(h-2) = 10			7(z-3) = 14		
5h-10 = 10	Distribute _5_		7z-21 = 14	Distribute _(3)_	
5h = 20	Add__(1)___on Both		7z = 35	Add __(4)___on both	
h = 4	Divide __(2)___on both		z = 5	Divide __(5)___on both	

Fill in (4)

Algebra:

✓ 21

Hints:

There is no tutoring for this problem. The next hint will reveal the answer.

Enter: 21

E)

Nathan's Solution			**Laura's Solution**		
5(h-2) = 10			7(z-3) = 14		
5h-10 = 10	Distribute _5_		7z-21 = 14	Distribute _(3)_	
5h = 20	Add__(1)___on Both		7z = 35	Add __(4)___on both	
h = 4	Divide __(2)___on both		z = 5	Divide __(5)___on both	

Fill in (5)

Algebra:

✓ 7

Hints:

There is no tutoring for this problem. The next hint will reveal the solution.

Enter: 7

F)

Nathan's Solution			**Laura's Solution**		
5(h-2) = 10			7(z-3) = 14		
5h-10 = 10	Distribute _5_		7z-21 = 14	Distribute _(3)_	
5h = 20	Add__(1)___on Both		7z = 35	Add __(4)___on both	
h = 4	Divide __(2)___on both		z = 5	Divide __(5)___on both	

How do you know if each student solved his or her problem correctly?

Ungraded open response:

G)

Nathan's Solution			**Laura's Solution**		
5(h-2) = 10			7(z-3) = 14		
5h-10 = 10	Distribute _5_		7z-21 = 14	Distribute _(3)_	
5h = 20	Add__(1)___on Both		7z = 35	Add __(4)___on both	
h = 4	Divide __(2)___on both		z = 5	Divide __(5)___on both	

Why did Nathan and Laura both divide as the last step?
Ungraded open response:

3) Assistment #77069 "77069 - 72466 - Rittle-Johnson CPT, Day 1-3a"
Solve this equation for h:

12 = 3(h - 3)
Algebra:
✓ 7

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 7

4) Assistment #77074 "77074 - 72467 - Rittle-Johnson CPT, Day 1-3b"
Solve this equation for c:

16 = 3(c - 3) + 5(c - 3)
Algebra:
✓ 5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 5

5) Assistment #77087 "77087 - 72467 - Rittle-Johnson CPT, Day 1-3b"
Solve this equation for x:

14 = 2(x - 4) + 5(x - 4)
Algebra:
✓ 6

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 6

6) Assistment #74517 "74517 - You've Finished D..."
You've Finished Day 1!

You will get instructions on when to procede to day two.

Multiple choice:

✓ When you come back for Day 2 click here.

7) Assistment #82369 "82369 - 60029 - Rittle-Johnson Reproduction"

A)

Peter's Solution		**Abby's Solution**	
3(y-5) +1(y-5) = 12		5(n-1) +7(n-1) = 36	
4(y-5) = 12	Combine (y-5)'s	12(n-1) = 36	Combine (3)
y-5 = 3	Divide (1) on both	n-1 = 3	Divide (4) on both
y = 8	Add (2) on both	n = 4	Add (5) on both

Fill in (1)

Algebra:

✓ 4

Hints:

There is no tutoring for this problem. The next hint will give the answer.

Enter: 4

B)

Peter's Solution		**Abby's Solution**	
3(y-5) +1(y-5) = 12		5(n-1) +7(n-1) = 36	
4(y-5) = 12	Combine (y-5)'s	12(n-1) = 36	Combine (3)
y-5 = 3	Divide (1) on both	n-1 = 3	Divide (4) on both

y = 8	Add (2) on both		n = 4	Add (5) on both	

Fill in (2)

Algebra:

✓ 5

Hints:

There is no tutoring for this problem. The next hint will give the answer.

Enter: 5

C)

Peter's Solution			**Abby's Solution**		
3(y-5) +1(y-5) = 12			5(n-1) +7(n-1) = 36		
4(y-5) = 12	Combine (y-5)'s		12(n-1) = 36	Combine (3)	
y-5 = 3	Divide (1) on both		n-1 = 3	Divide (4) on both	
y = 8	Add (2) on both		n = 4	Add (5) on both	

Choose what best fits in (3)

Multiple choice:

✓ (n-1)'s

✗ (n+1) 's

✗ 5(n-1)

✗ 7(n-1)

✗ 5

✗ 7

✗ t and -5

D)

Peter's Solution			**Abby's Solution**		
3(y-5) +1(y-5) = 12			5(n-1) +7(n-1) = 36		
4(y-5) = 12	Combine (y-5)'s		12(n-1) = 36	Combine (3)	
y-5 = 3	Divide (1) on both		n-1 = 3	Divide (4) on both	
y = 8	Add (2) on both		n = 4	Add (5) on both	

Fill in (4)

Algebra:

✓ 12

Hints:

There is no tutoring for this problem. The next hint will give the answer.

Enter: 12

E)

Peter's Solution		Abby's Solution	
3(y-5) +1(y-5) = 12		5(n-1) +7(n-1) = 36	
4(y-5) = 12	Combine (y-5)'s	12(n-1) = 36	Combine (3)
y-5 = 3	Divide (1) on both	n-1 = 3	Divide (4) on both
y = 8	Add (2) on both	n = 4	Add (5) on both

Fill in (5)

Algebra:

✓ 1

Hints:

There is no tutoring for this problem. The next hint will give the answer.

Enter: 1

F)

Peter's Solution		Abby's Solution	
3(y-5) +1(y-5) = 12		5(n-1) +7(n-1) = 36	
4(y-5) = 12	Combine (y-5)'s	12(n-1) = 36	Combine (3)
y-5 = 3	Divide (1) on both	n-1 = 3	Divide (4) on both
y = 8	Add (2) on both	n = 4	Add (5) on both

Describe two ways that these students' **solutions** are **similar.**

Ungraded open response:

G)

Peter's Solution		Abby's Solution	
3(y-5) +1(y-5) = 12		5(n-1) +7(n-1) = 36	
4(y-5) = 12	Combine (y-5)'s	12(n-1) = 36	Combine (3)
y-5 = 3	Divide (1) on both	n-1 = 3	Divide (4) on both
y = 8	Add (2) on both	n = 4	Add (5) on both

To solve 3(n+3)+6(n+3)+2(n+3)=27 would **Abby's** first step work? Why?

Ungraded open response:

H)

Peter's Solution		Abby's Solution	
3(y-5) +1(y-5) = 12		5(n-1) +7(n-1) = 36	
4(y-5) = 12	Combine (y-5)'s	12(n-1) = 36	Combine (3)
y-5 = 3	Divide (1) on both	n-1 = 3	Divide (4) on both
y = 8	Add (2) on both	n = 4	Add (5) on both

Using **Abby's** way, show the first step needed to solve 3(m+3)+6(m+3)=27

Multiple choice:

✓ 9(m+3)=27

✗ -3(m+3)=27

✗ 3+6=27/(m+3)

✘ 3(m+3)+6(m+3)=27
✘ 3m+9+6m+18=27
✘ 3(m+3)=27-6(m+3)

I)

Peter's Solution		**Abby's Solution**	
3(y-5) +1(y-5) = 12		5(n-1) +7(n-1) = 36	
4(y-5) = 12	Combine (y-5)'s	12(n-1) = 36	Combine (3)
y-5 = 3	Divide (1) on both	n-1 = 3	Divide (4) on both
y = 8	Add (2) on both	n = 4	Add (5) on both

Using **Abby's** way, solve:
3(m+3)+6(m+3)=27
Algebra:
✓ 0

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 0

8) Assistment #75627 "75627 - 60029 - Rittle-Johnson Reproduction"

A)

Roger's Solution		**Abby's Solution**	
8(x-8)+8(x-8) = 96		7(z-3)+4(z-3) = 33	
8x-64+8x-64 = 96	Distribute 8(x-8) and 8(x-8)	7z-21+4z-12 = 33	Distribute (4)
16x-128 = 96	Combine (1)	11z-33 = 33	Combine (5)
16x = 224	Add (2) on both	11z = 66	Add (6) on both
x = 14	Divide (3) on both	z = 6	Divide (7) on both

Choose all that apply for (1)
Check all that apply:
✓ 8x
✓ 8x
✓ -64
✓ -64
✘ 8
✘ 8
✘ x
✘ 96

Hints:

There is no tutoring for this problem. The next hint will give the solution.

You want to choose all of the terms that can be combined on the left of the equation.

Choose:

8x
8x
-64
-64

B)

Roger's Solution		**Abby's Solution**	
8(x-8)+8(x-8) = 96		7(z-3)+4(z-3) = 33	
8x-64+8x-64 = 96	Distribute 8(x-8) and 8(x-8)	7z-21+4z-12 = 33	Distribute __(4)__
16x-128 = 96	Combine __(1)	11z-33 = 33	Combine__(5)__
16x = 224	Add__(2)__on both	11z = 66	Add __(6)__on both
x = 14	Divide__(3)__on both	z = 6	Divide__(7)__on both

Fill in (2)

Algebra:

✓ 128

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 128

C)

Roger's Solution		**Abby's Solution**	
8(x-8)+8(x-8) = 96		7(z-3)+4(z-3) = 33	
8x-64+8x-64 = 96	Distribute 8(x-8) and 8(x-8)	7z-21+4z-12 = 33	Distribute __(4)__
16x-128 = 96	Combine __(1)	11z-33 = 33	Combine__(5)__
16x = 224	Add__(2)__on both	11z = 66	Add __(6)__on both
x = 14	Divide__(3)__on both	z = 6	Divide__(7)__on both

Fill in (3)

Algebra:

✓ 16

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 16

D)

Roger's Solution		**Abby's Solution**	
8(x-8)+8(x-8) = 96		7(z-3)+4(z-3) = 33	
8x-64+8x-64 = 96	Distribute 8(x-8) and 8(x-8)	7z-21+4z-12 = 33	Distribute __(4)__
16x-128 = 96	Combine __(1)	11z-33 = 33	Combine__(5)__
16x = 224	Add__(2)__on both	11z = 66	Add __(6)__on both
x = 14a	Divide__(3)__on both	z = 6	Divide__(7)__on both

Choose all that best fills in (4)

Check all that apply:

- ✓ 7(z-3)
- ✓ 4(z-3)
- ✗ 7(4)
- ✗ 4(7)
- ✗ 33
- ✗ 7(x-8)

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Choose:
7(z-3)
4(z-3)

E)

Roger's Solution		**Abby's Solution**	
8(x-8)+8(x-8) = 96		7(z-3)+4(z-3) = 33	
8x-64+8x-64 = 96	Distribute 8(x-8) and 8(x-8)	7z-21+4z-12 = 33	Distribute __(4)__
16x-128 = 96	Combine __(1)	11z-33 = 33	Combine__(5)__
16x = 224	Add__(2)__on both	11z = 66	Add __(6)__on both
x = 14	Divide__(3)__on both	z = 6	Divide__(7)__on both

Choose all that apply for (5)

Check all that apply:

- ✓ 7z
- ✓ 4z
- ✓ -12
- ✓ -21
- ✗ 7
- ✗ 4
- ✗ 33

Hints:

There is no tutoring for this problem. The next hint will give the solution.

You want to choose all of the terms that can be combined on the left of the equation.

Choose:
7z
4z
-12
-21

F)

Roger's Solution		**Abby's Solution**	
8(x-8)+8(x-8) = 96		7(z-3)+4(z-3) = 33	
8x-64+8x-64 = 96	Distribute 8(x-8) and 8(x-8)	7z-21+4z-12 = 33	Distribute __(4)__
16x-128 = 96	Combine __(1)	11z-33 = 33	Combine __(5)

16x = 224	Add__(2)__on both	11z = 66	Add __(6)__on both
x = 14a	Divide__(3)__on both	z = 6	Divide__(7)__on both

Fill in (6)

Algebra:

✓ 33

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 33

G)

Roger's Solution		**Abby's Solution**	
8(x-8)+8(x-8) = 96		7(z-3)+4(z-3) = 33	
8x-64+8x-64 = 96	Distribute 8(x-8) and 8(x-8)	7z-21+4z-12 = 33	Distribute __(4)__
16x-128 = 96	Combine __(1)	11z-33 = 33	Combine__(5)__
16x = 224	Add__(2)__on both	11z = 66	Add __(6)__on both
x = 14a	Divide__(3)__on both	z = 6	Divide__(7)__on both

Fill in (7)

Algebra:

✓ 11

Hints:

There is no tutoring for the problem. The next hint will give the solution.

Enter: 11

H)

Roger's Solution		**Abby's Solution**	
8(x-8)+8(x-8) = 96		7(z-3)+4(z-3) = 33	
8x-64+8x-64 = 96	Distribute 8(x-8) and 8(x-8)	7z-21+4z-12 = 33	Distribute __(4)__
16x-128 = 96	Combine __(1)	11z-33 = 33	Combine__(5)__
16x = 224	Add__(2)__on both	11z = 66	Add __(6)__on both
x = 14a	Divide__(3)__on both	z = 6	Divide__(7)__on both

Why are **Abby's** steps OK to do?

Ungraded open response:

I)

Roger's Solution		**Abby's Solution**	
8(x-8)+8(x-8) = 96		7(z-3)+4(z-3) = 33	
8x-64+8x-64 = 96	Distribute 8(x-8) and 8(x-8)	7z-21+4z-12 = 33	Distribute __(4)__
16x-128 = 96	Combine __(1)	11z-33 = 33	Combine__(5)__
16x = 224	Add__(2)__on both	11z = 66	Add __(6)__on both
x = 14a	Divide__(3)__on both	z = 6	Divide__(7)__on both

On a timed test, who's problem would you rather solve? Why?

Ungraded open response:

9) Assistment #77100 "77100 - 72468 - Rittle-Johnson CPT, Day 2-3a"

Solve this equation for d:

8 + 4(d + 5) = 6(d + 5)

Algebra:

✓ -1

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in -1

10) Assistment #77103 "77103 - 72468 - Rittle-Johnson CPT, Day 2-3a"

Solve this equation for a:

4 + 4(a + 5) = 6(a + 5)

Algebra:

✓ -3

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in -3

11) Assistment #77130 "77130 - 72469 - Rittle-Johnson CPT, Day 2-3b"

Solve this equation for d:

4(d + 4) + 5(d + 4) = 36

Algebra:

✓ 0

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 0

12) Assistment #77139 "77139 - 72469 - Rittle-Johnson CPT, Day 2-3b"

Solve this equation for y:

2(y + 3) + 2(y + 3) = 4

Algebra:

✓ -2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in -2

13) Assistment #74519 "74519 - Finished Day 2"

Congratulations!

You've finished Day 2!

Multiple choice:

✓ When you come back for Day 3 click here.

14) Assistment #75630 "75630 - 60029 - Rittle-Johnson Reproduction"

A)

Eric's Solution		**Heather's Solution**	
5(x-6)+1(x-6) = 24		7(n-7)+6(n-7) = 26	
5x-30+1x-6 = 24	Distribute 5(x-6) and 1(x-6)	7n-49+6n-42 = 26	Distribute __(4)__
6x-36 = 24	Combine __(1)	13n-91 = 26	Combine__(5)__
6x = 60	Add__(2)__on both	13n = 117	Add __(6)__on both
x = 10	Divide__(3)__on both	n = 9	Divide__(7)__on both

Choose all that apply for (1)

Check all that apply:

- ✓ 5x
- ✓ 1x
- ✓ -6
- ✓ -30
- ✗ 5
- ✗ 1
- ✗ x
- ✗ 24

Hints:

There is no tutoring for this problem. The next hint will give the solution.

You want to choose all of the terms that can be combined on the left of the equation.

Choose:

5x
1x
-6
-30

B)

Eric's Solution		**Heather's Solution**	
5(x-6)+1(x-6) = 24		7(n-7)+6(n-7) = 26	
5x-30+1x-6 = 24	Distribute 5(x-6) and 1(x-6)	7n-49+6n-42 = 26	Distribute __(4)__
6x-36 = 24	Combine __(1)	13n-91 = 26	Combine__(5)__
6x = 60	Add__(2)__on both	13n = 117	Add __(6)__on both
x = 10	Divide__(3)__on both	n = 9	Divide__(7)__on both

Fill in (2)

Algebra:

- ✓ 36

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 36

C)

Eric's Solution		**Heather's Solution**	
5(x-6)+1(x-6) = 24		7(n-7)+6(n-7) = 26	
5x-30+1x-6 = 24	Distribute 5(x-6) and 1(x-6)	7n-49+6n-42 = 26	Distribute __(4)__
6x-36 = 24	Combine __(1)	13n-91 = 26	Combine__(5)__
6x = 60	Add__(2)__on both	13n = 117	Add __(6)__on both
x = 10	Divide__(3)__on both	n = 9	Divide__(7)__on both

Fill in (3)

Algebra:

✓ 6

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 6

D)

Eric's Solution		**Heather's Solution**	
5(x-6)+1(x-6) = 24		7(n-7)+6(n-7) = 26	
5x-30+1x-6 = 24	Distribute 5(x-6) and 1(x-6)	7n-49+6n-42 = 26	Distribute __(4)__
6x-36 = 24	Combine __(1)	13n-91 = 26	Combine__(5)__
6x = 60	Add__(2)__on both	13n = 117	Add __(6)__on both
x = 10a	Divide__(3)__on both	n = 9	Divide__(7)__on both

Choose all that best fills in (4)

Check all that apply:

✓ 7(n-7)

✓ 6(n-7)

✗ 7(6)

✗ 6(7)

✗ 26

✗ 7(x-6)

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Choose:

7(n-7)

6(n-7)

E)

Eric's Solution		**Heather's Solution**	
5(x-6)+1(x-6) = 24		7(n-7)+6(n-7) = 26	
5x-30+1x-6 = 24	Distribute 5(x-6) and 1(x-6)	7n-49+6n-42 = 26	Distribute __(4)__
6x-36 = 24	Combine __(1)	13n-91 = 26	Combine__(5)__
6x = 60	Add__(2)__on both	13n = 117	Add __(6)__on both

x = 10	Divide (3) on both	n = 9	Divide (7) on both

Choose all that apply for (5)

Check all that apply:

- ✓ 7n
- ✓ 6n
- ✓ -42
- ✓ -49
- ✗ 7
- ✗ 6
- ✗ 26

Hints:

There is no tutoring for this problem. The next hint will give the solution.

You want to choose all of the terms that can be combined on the left of the equation.

Choose:
7n
6n
-42
-49

F)

Eric's Solution		**Heather's Solution**	
5(x-6)+1(x-6) = 24		7(n-7)+6(n-7) = 26	
5x-30+1x-6 = 24	Distribute 5(x-6) and 1(x-6)	7n-49+6n-42 = 26	Distribute (4)
6x-36 = 24	Combine (1)	13n-91 = 26	Combine (5)
6x = 60	Add (2) on both	13n = 117	Add (6) on both
x = 10a	Divide (3) on both	n = 9	Divide (7) on both

Fill in (6)

Algebra:

- ✓ 91

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 91

G)

Eric's Solution		**Heather's Solution**	
5(x-6)+1(x-6) = 24		7(n-7)+6(n-7) = 26	
5x-30+1x-6 = 24	Distribute 5(x-6) and 1(x-6)	7n-49+6n-42 = 26	Distribute (4)
6x-36 = 24	Combine (1)	13n-91 = 26	Combine (5)
6x = 60	Add (2) on both	13n = 117	Add (6) on both
x = 10a	Divide (3) on both	n = 9	Divide (7) on both

Fill in (7)

Algebra:

✓ 13

Hints:

There is no tutoring for the problem. The next hint will give the solution.

Enter: 13

H)

Eric's Solution		**Heather's Solution**	
5(x-6)+1(x-6) = 24		7(n-7)+6(n-7) = 26	
5x-30+1x-6 = 24	Distribute 5(x-6) and 1(x-6)	7n-49+6n-42 = 26	Distribute __(4)__
6x-36 = 24	Combine __(1)	13n-91 = 26	Combine__(5)__
6x = 60	Add__(2)__on both	13n = 117	Add __(6)__on both
x = 10a	Divide__(3)__on both	n = 9	Divide__(7)__on both

Why are **Heather's** steps OK to do?

Ungraded open response:

I)

Eric's Solution		**Heather's Solution**	
5(x-6)+1(x-6) = 24		7(n-7)+6(n-7) = 26	
5x-30+1x-6 = 24	Distribute 5(x-6) and 1(x-6)	7n-49+6n-42 = 26	Distribute __(4)__
6x-36 = 24	Combine __(1)	13n-91 = 26	Combine__(5)__
6x = 60	Add__(2)__on both	13n = 117	Add __(6)__on both
x = 10a	Divide__(3)__on both	n = 9	Divide__(7)__on both

On a timed test, who's problem would you rather solve? Why?

Ungraded open response:

15) Assistment #75655 "75655 - 60029 - Rittle-Johnson Reproduction"

A)

Eric's Solution		**Abby's Solution**	
4(x-2)+27 = 7(x-2)		4(m-4)+40 = 8(m-4)	
4x-8+27 = 7x-14	Distribute 4(x-2) and 7(x-2)	4m-16+40 = 8m-32	Distribute __(5)__
4x+19 = 7x-14	Combine __(1)	4m+24 = 8m-32	Combine __(6)__
19 = 3x-14	Subtract __(2)__on both	24 = 4m-32	Subtract __(7)__on both
33 = 3x	Add__(3)__on both	56 = 4m	Add__(8)__on both
11 = x	Divide __(4)__on both	14 = m	Divide __(9)__on both

Choose what best fits for (1)

Multiple choice:

✓ -8+27

✗ 4x+7x

✗ 4(x-2)+7(x-2)

✗ 4(x-2)+27

✗ 4(x-2)+7

✘ 4-2
✘ 7-14
✘ 8+27

B)

Eric's Solution			**Abby's Solution**		
4(x-2)+27 =	7(x-2)		4(m-4)+40 =	8(m-4)	
4x-8+27 =	7x-14	Distribute 4(x-2) and 7(x-2)	4m-16+40 =	8m-32	Distribute __(5)__
4x+19 =	7x-14	Combine __(1)	4m+24 =	8m-32	Combine __(6)__
19 =	3x-14	Subtract __(2)__on both	24 =	4m-32	Subtract __(7)__on both
33 =	3x	Add__(3)__on both	56 =	4m	Add__(8)__on both
11 =	x	Divide __(4)__on both	14 =	m	Divide __(9)__on both

Fill in (2)

Algebra:

✓ 4x

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 4x

C)

Eric's Solution			**Abby's Solution**		
4(x-2)+27 =	7(x-2)		4(m-4)+40 =	8(m-4)	
4x-8+27 =	7x-14	Distribute 4(x-2) and 7(x-2)	4m-16+40 =	8m-32	Distribute __(5)__
4x+19 =	7x-14	Combine __(1)	4m+24 =	8m-32	Combine __(6)__
19 =	3x-14	Subtract __(2)__on both	24 =	4m-32	Subtract __(7)__on both
33 =	3x	Add__(3)__on both	56 =	4m	Add__(8)__on both
11 =	x	Divide __(4)__on both	14 =	m	Divide __(9)__on both

Fill in (3)

Algebra:

✓ 14

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 14

D)

Eric's Solution			**Abby's Solution**		
4(x-2)+27 =	7(x-2)		4(m-4)+40 =	8(m-4)	
4x-8+27 =	7x-14	Distribute 4(x-2) and 7(x-2)	4m-16+40 =	8m-32	Distribute __(5)__
4x+19 =	7x-14	Combine __(1)	4m+24 =	8m-32	Combine __(6)__
19 =	3x-14	Subtract __(2)__on both	24 =	4m-32	Subtract __(7)__on both
33 =	3x	Add__(3)__on both	56 =	4m	Add__(8)__on both
11 =	x	Divide __(4)__on both	14 =	m	Divide __(9)__on both

Fill in (4)

Algebra:

✓ 3

Hints:

There is no tutoring for this problem. The next hint will give the answer.

Enter: 3

E)

Eric's Solution

4(x-2)+27	=	7(x-2)	
4x-8+27	=	7x-14	Distribute 4(x-2) and 7(x-2)
4x+19	=	7x-14	Combine __(1)
19	=	3x-14	Subtract __(2)__on both
33	=	3x	Add__(3)__on both
11	=	x	Divide __(4)__on both

Abby's Solution

4(m-4)+40	=	8(m-4)	
4m-16+40	=	8m-32	Distribute __(5)__
4m+24	=	8m-32	Combine __(6)__
24	=	4m-32	Subtract __(7)__on both
56	=	4m	Add__(8)__on both
14	=	m	Divide __(9)__on both

Choose all that apply for (5)

Check all that apply:

✓ 4(m-4)

✓ 8(m-4)

✗ 8(m+4)

✗ 4(m+4)

✗ 40

✗ 4

✗ 8

✗ 40(m-4)

Hints:

There is no tutoring for this problem. The next hint will give the answer.

Choose:

4(m-4)

AND

8(m-4)

F)

Eric's Solution

4(x-2)+27	=	7(x-2)	
4x-8+27	=	7x-14	Distribute 4(x-2) and 7(x-2)
4x+19	=	7x-14	Combine __(1)
19	=	3x-14	Subtract __(2)__on both
33	=	3x	Add__(3)__on both
11	=	x	Divide __(4)__on both

Abby's Solution

4(m-4)+40	=	8(m-4)	
4m-16+40	=	8m-32	Distribute __(5)__
4m+24	=	8m-32	Combine __(6)__
24	=	4m-32	Subtract __(7)__on both
56	=	4m	Add__(8)__on both
14	=	m	Divide __(9)__on both

Choose what best answers (6)

Multiple choice:

✓ -16+40

✗ 4m+8m

✗ 4(m-4)+8(m-4)

✗ 4(m-4)+40

✗ 4(m-4)+8

✗ 4-4

✗ 8-32

✗ 16+40

G)

Eric's Solution			**Abby's Solution**		
4(x-2)+27 =	7(x-2)		4(m-4)+40 =	8(m-4)	
4x-8+27 =	7x-14	Distribute 4(x-2) and 7(x-2)	4m-16+40 =	8m-32	Distribute __(5)__
4x+19 =	7x-14	Combine __(1)	4m+24 =	8m-32	Combine __(6)__
19 =	3x-14	Subtract __(2)__on both	24 =	4m-32	Subtract __(7)__on both
33 =	3x	Add__(3)__on both	56 =	4m	Add__(8)__on both
11 =	x	Divide __(4)__on both	14 =	m	Divide __(9)__on both

Fill in (7)

Algebra:

✓ 4m

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 4m

H)

Eric's Solution			**Abby's Solution**		
4(x-2)+27 =	7(x-2)		4(m-4)+40 =	8(m-4)	
4x-8+27 =	7x-14	Distribute 4(x-2) and 7(x-2)	4m-16+40 =	8m-32	Distribute __(5)__
4x+19 =	7x-14	Combine __(1)	4m+24 =	8m-32	Combine __(6)__
19 =	3x-14	Subtract __(2)__on both	24 =	4m-32	Subtract __(7)__on both
33 =	3x	Add__(3)__on both	56 =	4m	Add__(8)__on both
11 =	x	Divide __(4)__on both	14 =	m	Divide __(9)__on both

Fill in (8)

Algebra:

✓ 32

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 32

I)

Eric's Solution			Abby's Solution		
4(x-2)+27 =	7(x-2)		4(m-4)+40 =	8(m-4)	
4x-8+27 =	7x-14	Distribute 4(x-2) and 7(x-2)	4m-16+40 =	8m-32	Distribute __(5)__
4x+19 =	7x-14	Combine __(1)	4m+24 =	8m-32	Combine __(6)__
19 =	3x-14	Subtract __(2)__on both	24 =	4m-32	Subtract __(7)__on both
33 =	3x	Add__(3)__on both	56 =	4m	Add__(8)__on both
11 =	x	Divide __(4)__on both	14 =	m	Divide __(9)__on both

Fill in (9)

Algebra:

✓ 4

Hints:

There is no tutoring for this problem. The next hint will give the solution.

Enter: 4

J)

Eric's Solution			Abby's Solution		
4(x-2)+27 =	7(x-2)		4(m-4)+40 =	8(m-4)	
4x-8+27 =	7x-14	Distribute 4(x-2) and 7(x-2)	4m-16+40 =	8m-32	Distribute __(5)__
4x+19 =	7x-14	Combine __(1)	4m+24 =	8m-32	Combine __(6)__
19 =	3x-14	Subtract __(2)__on both	24 =	4m-32	Subtract __(7)__on both
33 =	3x	Add__(3)__on both	56 =	4m	Add__(8)__on both
11 =	x	Divide __(4)__on both	14 =	m	Divide __(9)__on both

Will Eric's way work to solve most other equations that are similar to

4(x-2)+27 = 7(x-2) ?
Yes or No? Explain your reasoning.

Ungraded open response:

K)

Eric's Solution			Abby's Solution		
4(x-2)+27 =	7(x-2)		4(m-4)+40 =	8(m-4)	
4x-8+27 =	7x-14	Distribute 4(x-2) and 7(x-2)	4m-16+40 =	8m-32	Distribute __(5)__
4x+19 =	7x-14	Combine __(1)	4m+24 =	8m-32	Combine __(6)__
19 =	3x-14	Subtract __(2)__on both	24 =	4m-32	Subtract __(7)__on both
33 =	3x	Add__(3)__on both	56 =	4m	Add__(8)__on both
11 =	x	Divide __(4)__on both	14 =	m	Divide __(9)__on both

If the problem were 8(j+2)=4(j+2)+12, could you use Abby's first step?
Yes or No? Explain your reasoning.

Ungraded open response:

16) Assistment #77155 "77155 - 72477 - Rittle-Johnson CPT, Day 3-3a"

Solve this equation for y:

$\frac{1}{4}(y - 5) = 1$

Algebra:

✓ 9

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 9

17) Assistment #77164 "77164 - 72471 - Rittle-Johnson CPT, Day 3-3b"

Solve this equation for x:

$6(x - 5) = 3 + 3(x - 5)$

Algebra:

✓ 6

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 6

18) Assistment #77172 "77172 - 72471 - Rittle-Johnson CPT, Day 3-3b"

Solve this equation for y:

$5(y - 3) = 3 + 4(y - 3)$

Algebra:

✓ 6

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 6

19) Assistment #74520 "74520 - Finished Day 3"

Congratulations!
You have finished Day 3. You will be doing a post test soon.

Multiple choice:

✓ FINISHED!!!

20) Duplicate assistment: Assistment #74514 "74514 - Welcome" was not displayed.

21) Assistment #76908 "76908 - 74314 - CSM Day 1.2"

A)

Eric's Solution

1(x - 3) + 1(x - 3)	= 4	
1x - 3 + 1x - 3	= 4	Distribute __(1)
2x - 6	= 4	Combine 1x's and 3's
2x	= 10	Add __(2)__ on both
x	= 5	Divide __(3)__ on both

Abby's Solution

1(x - 3) + 1(x - 3)	= 4	
2(x - 3)	= 4	Combine (x - 3)'s
x - 3	= 2	Divide __(4)__ on both
x	= 5	Add __(5)__ on both

Fill in (1)

Multiple choice:

✓ 1's into (x - 3)'s
✗ 1x into 3
✗ 2 into (x - 3)
✗ 1's into 2x

B)

Eric's Solution

1(x - 3) + 1(x - 3)	= 4	
1x - 3 + 1x - 3	= 4	Distribute __(1)
2x - 6	= 4	Combine 1x's and 3's
2x	= 10	Add __(2)__ on both
x	= 5	Divide __(3)__ on both

Abby's Solution

1(x - 3) + 1(x - 3)	= 4	
2(x - 3)	= 4	Combine (x - 3)'s
x - 3	= 2	Divide __(4)__ on both
x	= 5	Add __(5)__ on both

Fill in (2)
Algebra:
✓ 6

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 6

Type in 6

C)

Eric's Solution

1(x - 3) + 1(x - 3)	= 4	
1x - 3 + 1x - 3	= 4	Distribute __(1)
2x - 6	= 4	Combine 1x's and 3's
2x	= 10	Add __(2)__ on both
x	= 5	Divide __(3)__ on both

Abby's Solution

1(x - 3) + 1(x - 3)	= 4	
2(x - 3)	= 4	Combine (x - 3)'s
x - 3	= 2	Divide __(4)__ on both
x	= 5	Add __(5)__ on both

Fill in (3)
Algebra:
✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 2

Type in 2

D)

Eric's Solution

1(x - 3) + 1(x - 3)	= 4	
1x - 3 + 1x - 3	= 4	Distribute __(1)
2x - 6	= 4	Combine 1x's and 3's
2x	= 10	Add __(2)__ on both
x	= 5	Divide __(3)__ on both

Abby's Solution

1(x - 3) + 1(x - 3)	= 4	
2(x - 3)	= 4	Combine (x - 3)'s
x - 3	= 2	Divide __(4)__ on both
x	= 5	Add __(5)__ on both

Fill in (4)

Algebra:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 2

Type in 2

E)

Eric's Solution

1(x - 3) + 1(x - 3)	= 4	
1x - 3 + 1x - 3	= 4	Distribute __(1)
2x - 6	= 4	Combine 1x's and 3's
2x	= 10	Add __(2)__ on both
x	= 5	Divide __(3)__ on both

Abby's Solution

1(x - 3) + 1(x - 3)	= 4	
2(x - 3)	= 4	Combine (x - 3)'s
x - 3	= 2	Divide __(4)__ on both
x	= 5	Add __(5)__ on both

Fill in (5)

Algebra:

✓ 3

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 3

Type in 3

F)

Eric's Solution			Abby's Solution		
1(x - 3) + 1(x - 3)	= 4		1(x - 3) + 1(x - 3)	= 4	
1x - 3 + 1x - 3	= 4	Distribute __(1)	2(x - 3)	= 4	Combine (x - 3)'s
2x - 6	= 4	Combine 1x's and 3's	x - 3	= 2	Divide __(4)__on both
2x	= 10	Add __(2)__on both	x	= 5	Add __(5)__on both
x	= 5	Divide __(3)__on both			

Describe 2 ways these students' solutions are similar.
Ungraded open response:

G)

Eric's Solution			Abby's Solution		
1(x - 3) + 1(x - 3)	= 4		1(x - 3) + 1(x - 3)	= 4	
1x - 3 + 1x - 3	= 4	Distribute __(1)	2(x - 3)	= 4	Combine (x - 3)'s
2x - 6	= 4	Combine 1x's and 3's	x - 3	= 2	Divide __(4)__on both
2x	= 10	Add __(2)__on both	x	= 5	Add __(5)__on both
x	= 5	Divide __(3)__on both			

To solve 4(y + 5) + 6(y + 4) + 5(y + 2) = 42, whose first step would work better, Eric's or Abby's? Explain your reasoning.
Ungraded open response:

H)

Eric's Solution			Abby's Solution		
1(x - 3) + 1(x - 3)	= 4		1(x - 3) + 1(x - 3)	= 4	
1x - 3 + 1x - 3	= 4	Distribute __(1)	2(x - 3)	= 4	Combine (x - 3)'s
2x - 6	= 4	Combine 1x's and 3's	x - 3	= 2	Divide __(4)__on both
2x	= 10	Add __(2)__on both	x	= 5	Add __(5)__on both
x	= 5	Divide __(3)__on both			

What is the first step to solving the following equation using Abby's way?
6(x + 4) + 5(x + 4) = 22

Multiple choice:

- ✓ 11(x + 4) = 22
- ✗ 6x + 24 + 5x + 20 = 22
- ✗ 6(x + 4) = 22 - 5(x + 4)
- ✗ 6(x + 4) + 5(x + 4) - 22 = 0
- ✗ (x + 4) = 22

I) Solve for x.

6(x + 4) + 5(x + 4) = 22

Algebra:

✓ -2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is -2

Type in -2

22) Assistment #76918 "76918 - CSM Day 1.3.1"

A) 15 = 5(x - 2)

Select the two options below that could be the next step in solving this equation.

Check all that apply:

✓ 3 = x - 2

✓ 15 = 5x - 10

✗ 3 = 5(x - 2)

✗ 15 = 5x - 2

✗ 3 = 5x - 10

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Select 3 = x - 2 and 15 = 5x - 10

B) Solve for x

15 = 5(x - 2)

Algebra:

✓ 5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 5

Type in 5

23) Assistment #76928 "76928 - 74349 - CSM Day 1.3.2"

A) $20 = 6(x - 5) + 4(x - 5)$

Select the two options below that could be the next step in solving this equation.

Check all that apply:

- ✓ $20 = 10(x - 5)$
- ✗ $3.33333333333333 = 6(x - 5)$
- ✗ $20 = 6x - 5$
- ✗ $3.33333333333333 = 6x - 30$
- ✓ $20 = 4x - 20 + 6x - 30$

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Select $20 = 10(x - 5)$ and $20 = 4x - 20 + 6x - 30$

B) Solve for x

$20 = 6(x - 5) + 4(x - 5)$

Algebra:

- ✓ 7

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 7

Type in 7

24) Duplicate assistment: Assistment #74517 "74517 - You've Finished D..." was not displayed.

25) Assistment #81639 "81639 - 60338 - CSM Day 2.1"

A)

Nathan's Solution

$5(h + 6) = 3(h + 6) + 2$	
$5h + 30 = 3h + 18 + 2$	Distribute __(1)
$5h + 30 = 3h + 20$	Combine __(2)
$2h + 30 = 20$	Subtract __(3)__on both
$2h = -10$	Subtract __(4)__on both
$h = -5$	Divide __(5)__on both

Laura's Solution

$5(h + 6) = 3(h + 6) + 2$	
$2(h + 6) = 2$	Subtract 3(h + 6) on Both
$h + 6 = 1$	Divide __(6)__on both
$h = -5$	Subtract __(7)__on both

Fill in (1)

Multiple choice:

- ✓ 5 and 3
- ✗ 3 and (h + 6)
- ✗ (h + 6) and 5
- ✗ 5(h + 6) and h
- ✗ 5 and 6

B)

Nathan's Solution		Laura's Solution	
5(h + 6) = 3(h + 6) + 2		5(h + 6) = 3(h + 6) +2	
5h + 30 = 3h + 18 + 2	Distribute __(1)	2(h + 6) = 2	Subtract 3(h + 6) on Both
5h + 30 = 3h + 20	Combine __(2)	h + 6 = 1	Divide __(6)__on both
2h + 30 = 20	Subtract __(3)__on both	h = -5	Subtract __(7)__on both
2h = -10	Subtract __(4)__on both		
h = -5	Divide __(5)__on both		

Fill in (2)

Multiple choice:

- ✓ 2 and 18
- ✗ 3h and h
- ✗ 30 and 2
- ✗ 5h and 3h
- ✗ 3h and 5

C)

Nathan's Solution		Laura's Solution	
5(h + 6) = 3(h + 6) + 2		5(h + 6) = 3(h + 6) +2	
5h + 30 = 3h + 18 + 2	Distribute __(1)	2(h + 6) = 2	Subtract 3(h + 6) on Both
5h + 30 = 3h + 20	Combine __(2)	h + 6 = 1	Divide __(6)__on both
2h + 30 = 20	Subtract __(3)__on both	h = -5	Subtract __(7)__on both
2h = -10	Subtract __(4)__on both		
h = -5	Divide __(5)__on both		

Fill in (3)

Fill in:

- ✓ 3h

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 3h

Type in 3h

D)

Nathan's Solution		Laura's Solution	
5(h + 6) = 3(h + 6) + 2		5(h + 6) = 3(h + 6) +2	
5h + 30 = 3h + 18 + 2	Distribute __(1)	2(h + 6) = 2	Subtract 3(h + 6) on Both
5h + 30 = 3h + 20	Combine __(2)	h + 6 = 1	Divide __(6)__on both
2h + 30 = 20	Subtract __(3)__on both	h = -5	Subtract __(7)__on both
2h = -10	Subtract __(4)__on both		
h = -5	Divide __(5)__on both		

Fill in (4)

Fill in:

✓ 30

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 30

Type in 30

E)

Nathan's Solution		Laura's Solution	
5(h + 6) = 3(h + 6) + 2		5(h + 6) = 3(h + 6) +2	
5h + 30 = 3h + 18 + 2	Distribute __(1)	2(h + 6) = 2	Subtract 3(h + 6) on Both
5h + 30 = 3h + 20	Combine __(2)	h + 6 = 1	Divide __(6)__on both
2h + 30 = 20	Subtract __(3)__on both	h = -5	Subtract __(7)__on both
2h = -10	Subtract __(4)__on both		
h = -5	Divide __(5)__on both		

Fill in (5)

Fill in:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 2

Type in 2

F)

Nathan's Solution		Laura's Solution	
5(h + 6) = 3(h + 6) + 2		5(h + 6) = 3(h + 6) +2	
5h + 30 = 3h + 18 + 2	Distribute __(1)	2(h + 6) = 2	Subtract 3(h + 6) on Both
5h + 30 = 3h + 20	Combine __(2)	h + 6 = 1	Divide __(6)__on both
2h + 30 = 20	Subtract __(3)__on both	h = -5	Subtract __(7)__on both
2h = -10	Subtract __(4)__on both		
h = -5	Divide __(5)__on both		

Fill in (6)

Fill in:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 2

Type in 2

G)

Nathan's Solution		Laura's Solution	
5(h + 6) = 3(h + 6) + 2		5(h + 6) = 3(h + 6) +2	
5h + 30 = 3h + 18 + 2	Distribute __(1)	2(h + 6) = 2	Subtract 3(h + 6) on Both
5h + 30 = 3h + 20	Combine __(2)	h + 6 = 1	Divide __(6)__on both
2h + 30 = 20	Subtract __(3)__on both	h = -5	Subtract __(7)__on both
2h = -10	Subtract __(4)__on both		
h = -5	Divide __(5)__on both		

Fill in (7)

Fill in:

✓ 6

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 6

Type in 6

H)

Nathan's Solution		Laura's Solution	
5(h + 6) = 3(h + 6) + 2		5(h + 6) = 3(h + 6) +2	
5h + 30 = 3h + 18 + 2	Distribute __(1)	2(h + 6) = 2	Subtract 3(h + 6) on Both
5h + 30 = 3h + 20	Combine __(2)	h + 6 = 1	Divide __(6)__on both
2h + 30 = 20	Subtract __(3)__on both	h = -5	Subtract __(7)__on both
2h = -10	Subtract __(4)__on both		
h = -5	Divide __(5)__on both		

Describe two ways that these students' solutions are **different**.
Ungraded open response:

I)

Nathan's Solution		Laura's Solution	
5(h + 6) = 3(h + 6) + 2		5(h + 6) = 3(h + 6) +2	
5h + 30 = 3h + 18 + 2	Distribute __(1)	2(h + 6) = 2	Subtract 3(h + 6) on Both
5h + 30 = 3h + 20	Combine __(2)	h + 6 = 1	Divide __(6)__on both
2h + 30 = 20	Subtract __(3)__on both	h = -5	Subtract __(7)__on both
2h = -10	Subtract __(4)__on both		
h = -5	Divide __(5)__on both		

On a timed test, whose solution would you use and why?
Ungraded open response:

J)

Nathan's Solution		Laura's Solution	
5(h + 6) = 3(h + 6) + 2		5(h + 6) = 3(h + 6) +2	
5h + 30 = 3h + 18 + 2	Distribute __(1)	2(h + 6) = 2	Subtract 3(h + 6) on Both
5h + 30 = 3h + 20	Combine __(2)	h + 6 = 1	Divide __(6)__on both
2h + 30 = 20	Subtract __(3)__on both	h = -5	Subtract __(7)__on both
2h = -10	Subtract __(4)__on both		
h = -5	Divide __(5)__on both		

What is the first step to solving the following equation using Laura's way:

5(x + 2) = 3(x + 2) + 16
Multiple choice:

- ✓ 2(x + 2) = 16
- ✗ 5x + 10 = 3x + 6 + 16
- ✗ 5(x + 2) - 16 = 3(x + 2)
- ✗ 5x + 10 = 3x + 22
- ✗ 5(x + 2) = 16

K) Solve for x

$5(x + 2) = 3(x + 2) + 16$

Algebra:

✓ 6

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 6

Type in 6

26) Assistment #74414 "74414 - 74351 - CSM Day 2.2"

A)

Laura's Solution

$3(h - 2) + 1(h - 2) =$	8	
$4(h - 2) =$	8	Combine __(1)
$h - 2 =$	2	Divide __(2)__ on both
$h =$	4	Add __(3)__ on both

Nathan's Solution

$3(h - 2) + 1(h - 2) =$	8	
$3h - 6 + 1h - 2 =$	8	Distribute __(4)__
$4h - 8 =$	8	Combine __(5)__
$4h =$	16	Add __(6)__ on both
$h =$	4	Divide __(7)__ on both

Fill in (1)

Multiple choice:

✓ $3(h - 2)$ and $1(h - 2)$

✗ 8 and $(h - 2)$

✗ 4 and 8

✗ $3(h - 2)$ and 2

✗ $8(h - 2)$ and $1(h - 2)$

B)

Laura's Solution

$3(h - 2) + 1(h - 2) =$	8	
$4(h - 2) =$	8	Combine __(1)
$h - 2 =$	2	Divide __(2)__ on both
$h =$	4	Add __(3)__ on both

Nathan's Solution

$3(h - 2) + 1(h - 2) =$	8	
$3h - 6 + 1h - 2 =$	8	Distribute __(4)__
$4h - 8 =$	8	Combine __(5)__
$4h =$	16	Add __(6)__ on both
$h =$	4	Divide __(7)__ on both

Fill in (2)

Algebra:

✓ 4

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 4

Type in 4

C)

Laura's Solution

3(h - 2) + 1(h - 2) =	8	
4(h - 2) =	8	Combine __(1)
h - 2 =	2	Divide __(2)__on both
h =	4	Add __(3)__on both

Nathan's Solution

3(h - 2) + 1(h - 2) =	8	
3h - 6 + 1h - 2 =	8	Distribute __(4)__
4h - 8 =	8	Combine __(5)__
4h =	16	Add __(6)__on both
h =	4	Divide __(7)__on both

Fill in (3)

Algebra:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 2

Type in 2

D)

Laura's Solution

3(h - 2) + 1(h - 2) =	8	
4(h - 2) =	8	Combine __(1)
h - 2 =	2	Divide __(2)__on both
h =	4	Add __(3)__on both

Nathan's Solution

3(h - 2) + 1(h - 2) =	8	
3h - 6 + 1h - 2 =	8	Distribute __(4)__
4h - 8 =	8	Combine __(5)__
4h =	16	Add __(6)__on both
h =	4	Divide __(7)__on both

Fill in (4)

Multiple choice:

✓ 3 and 1 into the (h - 2)'s

✗ 3 and 8 into the (h - 2)'s

✗ 3 and 1 into the 8's

✗ 2 into the 8

✗ 8 into the 4

E)

Laura's Solution			Nathan's Solution		
3(h - 2) + 1(h - 2) =	8		3(h - 2) + 1(h - 2) =	8	
4(h - 2) =	8	Combine __(1)	3h - 6 + 1h - 2 =	8	Distribute __(4)__
h - 2 =	2	Divide __(2)__on both	4h - 8 =	8	Combine __(5)__
h =	4	Add __(3)__on both	4h =	16	Add __(6)__on both
			h =	4	Divide __(7)__on both

Fill in (5)

Multiple choice:

- ✓ 3h with 1h and 6 with 2
- ✗ 8h with 1h and 6 with 2
- ✗ 8h with 1h and 1 with 24
- ✗ 3h with 8h
- ✗ 2 with 6

F)

Laura's Solution			Nathan's Solution		
3(h - 2) + 1(h - 2) =	8		3(h - 2) + 1(h - 2) =	8	
4(h - 2) =	8	Combine __(1)	3h - 6 + 1h - 2 =	8	Distribute __(4)__
h - 2 =	2	Divide __(2)__on both	4h - 8 =	8	Combine __(5)__
h =	4	Add __(3)__on both	4h =	16	Add __(6)__on both
			h =	4	Divide __(7)__on both

Fill in (6)

Algebra:

✓ 8

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 8

Type in 8

G)

Laura's Solution			Nathan's Solution		
3(h - 2) + 1(h - 2) =	8		3(h - 2) + 1(h - 2) =	8	
4(h - 2) =	8	Combine __(1)	3h - 6 + 1h - 2 =	8	Distribute __(4)__
h - 2 =	2	Divide __(2)__on both	4h - 8 =	8	Combine __(5)__
h =	4	Add __(3)__on both	4h =	16	Add __(6)__on both
			h =	4	Divide __(7)__on both

Fill in (7)
Algebra:
✓ 4

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 4

Type in 4

H)

Laura's Solution			Nathan's Solution		
3(h - 2) + 1(h - 2) =	8		3(h - 2) + 1(h - 2) =	8	
4(h - 2) =	8	Combine __(1)	3h - 6 + 1h - 2 =	8	Distribute __(4)__
h - 2 =	2	Divide __(2)__on both	4h - 8 =	8	Combine __(5)__
h =	4	Add __(3)__on both	4h =	16	Add __(6)__on both
			h =	4	Divide __(7)__on both

Why might you choose Laura's way to solve this problem?
Ungraded open response:

I)

Laura's Solution			Nathan's Solution		
3(h - 2) + 1(h - 2) =	8		3(h - 2) + 1(h - 2) =	8	
4(h - 2) =	8	Combine __(1)	3h - 6 + 1h - 2 =	8	Distribute __(4)__
h - 2 =	2	Divide __(2)__on both	4h - 8 =	8	Combine __(5)__
h =	4	Add __(3)__on both	4h =	16	Add __(6)__on both
			h =	4	Divide __(7)__on both

What must be true about an equation for Laura's way to be easier than Nathan's way?
Ungraded open response:

27) Assistment #76948 "76948 - CSM 2.3.1"
A) 6 + 3(h + 6) = 6(h +6)

Select the two options below that could be the next step in solving this equation.
Check all that apply:
✓ 6 = 3(h + 6)
✓ 6 + 3h + 18 = 6h + 36
✗ 6 = 9(h + 6)

✘ 3 + 3h + 18 = 6h + 36
✘ 3 + 3h + 18 = 6h

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Select 6 = 3(h + 6) and 6 + 3h + 18 = 6h + 36

B) Solve for h

6 + 3(h + 6) = 6(h +6)

Algebra:

✓ -4

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is -4

Type in -4

28) Assistment #76958 "76958 - CSM 2.3.2"

A) 3(h + 7) + 4(h +7) = 14

Select the two options below that could be the next step in solving this equation.

Check all that apply:

✓ 7(h + 7) = 14
✓ 3h + 21 + 4h + 28 = 14
✘ 15(h + 7) = 14
✘ 3h + 21 + 14h + 98 = 3
✘ 3h + 21 + 4h = 3

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Select 7(h + 7) = 14 and 3h + 21 + 4h + 28 = 14

B) Solve for h

3(h + 7) + 4(h +7) = 14

Algebra:

✓ -5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is -5

Type in -5

29) Duplicate assistment: Assistment #74519 "74519 - Finished Day 2" was not displayed.

30) Assistment #76968 "76968 - 74355 - CSM Day 3.1"

A)

Eric's Solution			Laura's Solution		
$(4/2)(x + 4) = 8$			$(4/2)(x + 4) = 8$		
$(4x/2) + 8 = 8$		Distribute __(1)	$x + 4 = 4$		Divide __(4)__on Both
$(4x/2) = 0$		Subtract __(2)__on both	$x = 0$		Subtract __(5)__on both
$x = 0$		Divide __(3)__on both			

Fill in (1)

Algebra:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is $4/2$

Type in $4/2$

B)

Eric's Solution			Laura's Solution		
$(4/2)(x + 4) = 8$			$(4/2)(x + 4) = 8$		
$(4x/2) + 8 = 8$		Distribute __(1)	$x + 4 = 4$		Divide __(4)__on Both
$(4x/2) = 0$		Subtract __(2)__on both	$x = 0$		Subtract __(5)__on both
$x = 0$		Divide __(3)__on both			

Fill in (2)

Algebra:

✓ 8

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 8

Type in 8

C)

Eric's Solution			Laura's Solution		
$(4/2)(x + 4)$	= 8		$(4/2)(x + 4)$	= 8	
$(4x/2) + 8$	= 8	Distribute __(1)	$x + 4$	= 4	Divide __(4)__on Both
$(4x/2)$	= 0	Subtract __(2)__on both	x	= 0	Subtract __(5)__on both
x	= 0	Divide __(3)__on both			

Fill in (3)

Algebra:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is $4/2$

Type in $4/2$

D)

Eric's Solution			Laura's Solution		
$(4/2)(x + 4)$	= 8		$(4/2)(x + 4)$	= 8	
$(4x/2) + 8$	= 8	Distribute __(1)	$x + 4$	= 4	Divide __(4)__on Both
$(4x/2)$	= 0	Subtract __(2)__on both	x	= 0	Subtract __(5)__on both
x	= 0	Divide __(3)__on both			

Fill in (4)

Algebra:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is $^{4}/_{2}$

Type in $^{4}/_{2}$

E)

Eric's Solution			Laura's Solution		
$(^{4}/_{2})(x + 4)$	= 8		$(^{4}/_{2})(x + 4)$	= 8	
$(^{4x}/_{2}) + 8$	= 8	Distribute __(1)	$x + 4$	= 4	Divide __(4)__on Both
$(^{4x}/_{2})$	= 0	Subtract __(2)__on both	x	= 0	Subtract __(5)__on both
x	= 0	Divide __(3)__on both			

Fill in (5)

Algebra:

✓ 4

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 4

Type in 4

F)

Eric's Solution			Laura's Solution		
$(^{4}/_{2})(x + 4)$	= 8		$(^{4}/_{2})(x + 4)$	= 8	
$(^{4x}/_{2}) + 8$	= 8	Distribute __(1)	$x + 4$	= 4	Divide __(4)__on Both
$(^{4x}/_{2})$	= 0	Subtract __(2)__on both	x	= 0	Subtract __(5)__on both
x	= 0	Divide __(3)__on both			

When is Laura's way is easier than Eric's way?

Ungraded open response:

G)

Eric's Solution	Laura's Solution

$(^4/_2)(x + 4) = 8$

$(^{4x}/_2) + 8 = 8$ Distribute __(1)

$(^{4x}/_2) = 0$ Subtract __(2)__on both

$x = 0$ Divide __(3)__on both

$(^4/_2)(x + 4) = 8$

$x + 4 = 4$ Divide __(4)__on Both

$x = 0$ Subtract __(5)__on both

Describe 2 ways there students' solutions are similar.
Ungraded open response:

H)

Eric's Solution

$(^4/_2)(x + 4) = 8$

$(^{4x}/_2) + 8 = 8$ Distribute __(1)

$(^{4x}/_2) = 0$ Subtract __(2)__on both

$x = 0$ Divide __(3)__on both

Laura's Solution

$(^4/_2)(x + 4) = 8$

$x + 4 = 4$ Divide __(4)__on Both

$x = 0$ Subtract __(5)__on both

What is the first step to solving the following equation using Laura's way

$(^2/_5)(x - 4) = 2$

Multiple choice:

- ✓ $x - 4 = 5$
- ✗ $(2x/5) - (8/5) = 2$
- ✗ $(2x/5) - (2/5)(4) = 2$
- ✗ $(2x/5) = 2 + (8/5)$
- ✗ $x - 4 = (4/5)$

I) Solve for x

$(^2/_5)(x - 4) = 2$

Algebra:

- ✓ 9

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 9

Type in 9

31) Assistment #81648 "81648 - CSM Day 3.2"

A)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)	Subtract __(1)	
1 = h - 2	Divide __(2)__	on both
3 = h	Add __(3)__	on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14	Distribute __(4)__	
2h - 1 = 7h - 14	Combine __(5)__	
1 = 5h - 14	Subtract __(6)__	on both
15 = 5h	Add __(7)__	on both
3 = h	Divide __(8)__	on both

Fill in (1)

Multiple choice:

- ✓ 2(h - 2)
- ✗ 5
- ✗ 9
- ✗ 5(h - 2)
- ✗ 2(h - 5)

B)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)	Subtract __(1)	
1 = h - 2	Divide __(2)__	on both
3 = h	Add __(3)__	on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14	Distribute __(4)__	
2h - 1 = 7h - 14	Combine __(5)__	
1 = 5h - 14	Subtract __(6)__	on both
15 = 5h	Add __(7)__	on both
3 = h	Divide __(8)__	on both

Fill in (2)

Algebra:

- ✓ 5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 5

Type in 5

C)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)	Subtract __(1)	
1 = h - 2	Divide __(2)__	on both
3 = h	Add __(3)__	on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14	Distribute __(4)__	
2h - 1 = 7h - 14	Combine __(5)__	
1 = 5h - 14	Subtract __(6)__	on both
15 = 5h	Add __(7)__	on both
3 = h	Divide __(8)__	on both

Fill in (3)

Algebra:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 2

Type in 2

D)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)		Subtract __(1)
1 = h - 2		Divide __(2)__on both
3 = h		Add __(3)__on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14		Distribute __(4)__
2h - 1 = 7h - 14		Combine __(5)__
1 = 5h - 14		Subtract __(6)__on both
15 = 5h		Add __(7)__on both
3 = h		Divide __(8)__on both

Fill in (4)

Multiple choice:

✓ 2 and 7 into (h - 2)'s

✗ 2 and 5 into (h - 2)'s

✗ 2 and 5 into (h - 7)'s

✗ 2 into (h - 7)'s

✗ 7 into (h - 2)'s

E)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)		Subtract __(1)
1 = h - 2		Divide __(2)__on both
3 = h		Add __(3)__on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14		Distribute __(4)__
2h - 1 = 7h - 14		Combine __(5)__
1 = 5h - 14		Subtract __(6)__on both
15 = 5h		Add __(7)__on both
3 = h		Divide __(8)__on both

Fill in (5)

Multiple choice:

✓ -4 and 5

✗ -2 and 5

✘ 4 and 5h
✘ 5 and 2h
✘ 7h and -14
✘ 2h and 4

F)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)		Subtract __(1)
1 = h - 2		Divide __(2)__on both
3 = h		Add __(3)__on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14		Distribute __(4)__
2h - 1 = 7h - 14		Combine __(5)__
1 = 5h - 14		Subtract __(6)__on both
15 = 5h		Add __(7)__on both
3 = h		Divide __(8)__on both

Fill in (6)
Algebra:
✓ 2h

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 2h

Type in 2h

G)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)		Subtract __(1)
1 = h - 2		Divide __(2)__on both
3 = h		Add __(3)__on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14		Distribute __(4)__
2h - 1 = 7h - 14		Combine __(5)__
1 = 5h - 14		Subtract __(6)__on both
15 = 5h		Add __(7)__on both
3 = h		Divide __(8)__on both

Fill in (7)
Algebra:
✓ 14

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 14

Type in 14

H)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)	Subtract __(1)	
1 = h - 2	Divide __(2)__	on both
3 = h	Add __(3)__	on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14	Distribute __(4)__	
2h - 1 = 7h - 14	Combine __(5)__	
1 = 5h - 14	Subtract __(6)__	on both
15 = 5h	Add __(7)__	on both
3 = h	Divide __(8)__	on both

Fill in (8)

Algebra:

✓ 5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 5

Type in 5

I)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)	Subtract __(1)	
1 = h - 2	Divide __(2)__	on both
3 = h	Add __(3)__	on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14	Distribute __(4)__	
2h - 1 = 7h - 14	Combine __(5)__	
1 = 5h - 14	Subtract __(6)__	on both
15 = 5h	Add __(7)__	on both
3 = h	Divide __(8)__	on both

Whose solution is better, Abby's or Nathan's? Explain your reasoning.

Ungraded open response:

J)

Abby's Solution

2(h - 2) + 5 = 7(h - 2)		
5 = 5(h - 2)	Subtract __(1)	
1 = h - 2	Divide __(2)__	on both
3 = h	Add __(3)__	on both

Nathan's Solution

2(h - 2) + 5 = 7(h - 2)		
2h - 4 + 5 = 7h - 14	Distribute __(4)__	
2h - 1 = 7h - 14	Combine __(5)__	
1 = 5h - 14	Subtract __(6)__	on both
15 = 5h	Add __(7)__	on both
3 = h	Divide __(8)__	on both

If the problem were 8(j + 2) = 4(j + 8) + 12, whose first step would work better, Abby's or Nathan's? Explain your reasoning.
Ungraded open response:

32) Assistment #77002 "77002 - CSM Day 3.3.2"

A) 7(y - 7) = 4(y - 7) + 2

Select the two options below that could be the next step in solving this equation.
Check all that apply:

- ✓ 3(y - 7) = 2
- ✓ 7y - 49 = 4y - 28 + 2
- ✗ 11(y - 7) = 2
- ✗ 7y - 7 = 4y - 7 + 2
- ✗ 28(y - 7) = 2
- ✗ 7y - 49 = 4y - 28 + 8

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Select 3(y - 7) = 2 and 7y - 49 = 4y - 28 + 2

B) Solve for y

7(y - 7) = 4(y - 7) + 2
Algebra:

- ✓ 7.66666666666667

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

The answer is 7.66666666666667

Type in 7.66666666666667

33) Duplicate assistment: Assistment #74520 "74520 - Finished Day 3" was not displayed.
34) Duplicate assistment: Assistment #74514 "74514 - Welcome" was not displayed.
35) Assistment #75698 "75698 - 69412 - Rittle-Johnson CPT, Day 1-1"

A)

Nathan's Solution		**Abby's Solution**	
5(y - 5) + 5(y - 5) = 40		3(y - 4) = 12	
5y - 25 + 5y - 25 = 40	Distribute 5's into (y - 5)'s	3y - 12 = 12	Distribute 3 into (y - 4)

10y - 50 =	40	Combine 5y's and 25's	3y =	24	Add __(3)__on both
10y =	90	Add __(1)__on both	y =	8	Divide __(4)__on both
y =	9	Divide __(2)__on both			

Fill in (1)

Algebra:

✓ 50

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 50

B)

Nathan's Solution

5(y - 5) + 5(y - 5) =	40	
5y - 25 + 5y - 25 =	40	Distribute 5's into (y - 5)'s
10y - 50 =	40	Combine 5y's and 25's
10y =	90	Add __(1)__on both
y =	9	Divide __(2)__on both

Abby's Solution

3(y - 4) =	12	
3y - 12 =	12	Distribute 3 into (y - 4)
3y =	24	Add __(3)__on both
y =	8	Divide __(4)__on both

Fill in (2)

Algebra:

✓ 10

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 10

C)

Nathan's Solution

5(y - 5) + 5(y - 5) =	40	
5y - 25 + 5y - 25 =	40	Distribute 5's into (y - 5)'s
10y - 50 =	40	Combine 5y's and 25's
10y =	90	Add __(1)__on both
y =	9	Divide __(2)__on both

Abby's Solution

3(y - 4) =	12	
3y - 12 =	12	Distribute 3 into(y - 4)
3y =	24	Add __(3)__on both
y =	8	Divide __(4)__on both

Fill in (3)

Algebra:

✓ 12

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 12

D)

Nathan's Solution

5(y - 5) + 5(y - 5) =	40	
5y - 25 + 5y - 25 =	40	Distribute 5's into (y - 5)'s
10y - 50 =	40	Combine 5y's and 25's
10y =	90	Add __(1)__ on both
y =	9	Divide __(2)__ on both

Abby's Solution

3(y - 4) =	12	
3y - 12 =	12	Distribute 3 into(y - 4)
3y =	24	Add __(3)__ on both
y =	8	Divide __(4)__ on both

Fill in (4)

Algebra:

✓ 3

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 3

E)

Nathan's Solution

Abby's Solution

5(y - 5) + 5(y - 5) =	40	
5y - 25 + 5y - 25 =	40	Distribute 5's into (y - 5)'s
10y - 50 =	40	Combine 5y's and 25's
10y =	90	Add __(1)__ on both
y =	9	Divide __(2)__ on both

3(y - 4) =	12	
3y - 12 =	12	Distribute 3 into (y - 4)
3y =	24	Add __(3)__ on both
y =	8	Divide __(4)__ on both

How do you know if each student solved his/her problem correctly?

Ungraded open response:

F)

Nathan's Solution

5(y - 5) + 5(y - 5) =	40	
5y - 25 + 5y - 25 =	40	Distribute 5's into (y - 5)'s
10y - 50 =	40	Combine 5y's and 25's
10y =	90	Add __(1)__ on both
y =	9	Divide __(2)__ on both

Abby's Solution

3(y - 4) =	12	
3y - 12 =	12	Distribute 3 into (y - 4)
3y =	24	Add __(3)__ on both
y =	8	Divide __(4)__ on both

Why did Nathan and Abby both divide as a last step?
Ungraded open response:

36) Assistment #75684 "75684 - 69873 - Rittle-Johnson CPT, Day 1-2"

A)

Eric's Solution

4(y - 3) =	16	
y - 3 =	4	Divide 4 on both
y =	7	Add __(1)__ on both

Laura's Solution

2(y - 3) + 2(y - 3) =	16	
4(y - 3) =	16	Combine (y - 3)'s
y - 3 =	4	Divide __(2)__ on both
y =	7	Add __(3)__ on both

Fill in (1)
Algebra:
✓ 3

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 3

B)

Eric's Solution

4(y - 3) = 16
y - 3 = 4 Divide 4 on both
y = 7 Add __(1)__on both

Laura's Solution

2(y - 3) + 2(y - 3) = 16
4(y - 3) = 16 Combine (y - 3)'s
y - 3 = 4 Divide __(2)__on both
y = 7 Add __(3)__on both

Fill in (2)

Algebra:

✓ 4

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 4

C)

Eric's Solution

4(y - 3) = 16
y - 3 = 4 Divide 4 on both
y = 7 Add __(1)__on both

Laura's Solution

2(y - 3) + 2(y - 3) = 16
4(y - 3) = 16 Combine (y - 3)'s
y - 3 = 4 Divide __(2)__on both
y = 7 Add __(3)__on both

Fill in (3)

Algebra:

✓ 3

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 3

D)

Eric's Solution

4(y - 3) = 16
y - 3 = 4 Divide 4 on both
y = 7 Add __(1)__on both

Laura's Solution

2(y - 3) + 2(y - 3) = 16
4(y - 3) = 16 Combine (y - 3)'s
y - 3 = 4 Divide __(2)__on both
y = 7 Add __(3)__on both

Describe 2 ways that these two students' **solutions** are **similar**.

Ungraded open response:

E)

Eric's Solution

$4(y - 3) = 16$
$y - 3 = 4$ Divide 4 on both
$y = 7$ Add (1) on both

Laura's Solution

$2(y - 3) + 2(y - 3) = 16$
$4(y - 3) = 16$ Combine (y - 3)'s
$y - 3 = 4$ Divide (2) on both
$y = 7$ Add (3) on both

To solve 4(y+5) + 6(y+5) = 42, whose first step would work better? Eric's or Laura's? Explain your reasoning.

Ungraded open response:

F)

Eric's Solution

$4(y - 3) = 16$
$y - 3 = 4$ Divide 4 on both
$y = 7$ Add (1) on both

Laura's Solution

$2(y - 3) + 2(y - 3) = 16$
$4(y - 3) = 16$ Combine (y - 3)'s
$y - 3 = 4$ Divide (2) on both
$y = 7$ Add (3) on both

If you were to use Laura's method to solve the following equation, what would be the appropriate first step?

2(f + 3) + 2(f + 3) = 4

Multiple choice:

- ✗ 2(f + 3) = 4 - 2(f + 3)
- ✗ 2f + 6 + 2f + 6 = 4
- ✗ 2(f + 3) + 2(f + 3) - 4 = 0
- ✗ 2(f + 3) + 2f + 6 = 4
- ✓ 4(f + 3) = 4

G)

Eric's Solution

$4(y - 3) = 16$
$y - 3 = 4$ Divide 4 on both
$y = 7$ Add (1) on both

Laura's Solution

$2(y - 3) + 2(y - 3) = 16$
$4(y - 3) = 16$ Combine (y - 3)'s
$y - 3 = 4$ Divide (2) on both

y = 7 Add __(3)__on both

Solve the equation for f.

2(f + 3) + 2(f + 3) = 4
Algebra:
✓ -2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in -2

37) Assistment #75714 "75714 - 72466 - Rittle-Johnson CPT, Day 1-3a"
Solve this equation for y:

20 = 5(y - 2)
Algebra:
✓ 6

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 6

38) Assistment #75722 "75722 - 72466 - Rittle-Johnson CPT, Day 1-3a"
Solve this equation for d:

6 = 2(d - 4)
Algebra:
✓ 7

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 7

39) Assistment #75735 "75735 - 72467 - Rittle-Johnson CPT, Day 1-3b"
Solve this equation for d:

16 = 3(d - 5) + 5(d - 5)

Algebra:

✓ 7

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 7

40) Assistment #75702 "75702 - 75507 - Rittle-Johnson CPT, Day 1-3b'"

Solve this equation for y:

12 = 2(y + 4) + 2(y + 4)

Algebra:

✓ -1

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in -1

41) Duplicate assistment: Assistment #74517 "74517 - You've Finished D..." was not displayed.

42) Assistment #75837 "75837 - 60207 - Rittle-Johnson CPT, Day 2-1"

A)

Peter's Solution

4(y - 6) + 2(y - 6) = 12		
6(y - 6) = 12	Combine __(1)	
y - 6 = 2	Divide __(2)__on both	
y = 8	Add __(3)__on both	

Abby's Solution

5(y + 3) = 3(y + 3) + 24	
2(y + 3) = 24	Subtract 3(y + 3) on Both
y + 3 = 12	Divide __(4)__on both
y = 9	Subtract __(5)__on both

Fill in (1)

Multiple choice:

✓ (y - 6)'s

✗ 4 and (y - 6)

✗ 2 and (y - 6)

✗ 2(y - 6) and 12

B)

Peter's Solution

4(y - 6) + 2(y - 6) = 12		
6(y - 6) = 12	Combine __(1)	

Abby's Solution

5(y + 3) = 3(y + 3) + 24	
2(y + 3) = 24	Subtract 3(y + 3) on Both

y - 6 = 2	Divide __(2)__on both		y + 3 = 12	Divide __(4)__on both	
y = 8	Add __(3)__on both		y = 9	Subtract __(5)__on both	

Fill in (2)

Algebra:

✓ 6

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 6

C)

Peter's Solution			**Abby's Solution**	
4(y - 6) + 2(y - 6) = 12			5(y + 3) = 3(y + 3) + 24	
6(y - 6) = 12	Combine __(1)		2(y + 3) = 24	Subtract 3(y + 3) on Both
y - 6 = 2	Divide __(2)__on both		y + 3 = 12	Divide __(4)__on both
y = 8	Add __(3)__on both		y = 9	Subtract __(5)__on both

Fill in (3)

Algebra:

✓ 6

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 6

D)

Peter's Solution			**Abby's Solution**	
4(y - 6) + 2(y - 6) = 12			5(y + 3) = 3(y + 3) + 24	
6(y - 6) = 12	Combine __(1)		2(y + 3) = 24	Subtract 3(y + 3) on Both
y - 6 = 2	Divide __(2)__on both		y + 3 = 12	Divide __(4)__on both
y = 8	Add __(3)__on both		y = 9	Subtract __(5)__on both

Fill in (4)

Algebra:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 2

E)

Peter's Solution			**Abby's Solution**		
4(y - 6) + 2(y - 6) =	12		5(y + 3) =	3(y + 3) + 24	
6(y - 6) =	12	Combine __(1)	2(y + 3) =	24	Subtract 3(y + 3) on Both
y - 6 =	2	Divide __(2)__on both	y + 3 =	12	Divide __(4)__on both
y =	8	Add __(3)__on both	y =	9	Subtract __(5)__on both

Fill in (5)

Algebra:

✓ 3

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 3

F)

Peter's Solution			**Abby's Solution**		
4(y - 6) + 2(y - 6) =	12		5(y + 3) =	3(y + 3) + 24	
6(y - 6) =	12	Combine __(1)	2(y + 3) =	24	Subtract 3(y + 3) on Both
y - 6 =	2	Divide __(2)__on both	y + 3 =	12	Divide __(4)__on both
y =	8	Add __(3)__on both	y =	9	Subtract __(5)__on both

Describe one way the students **problems** are the same and one way they are different.
Ungraded open response:

G)

Peter's Solution			**Abby's Solution**		
4(y - 6) + 2(y - 6) =	12		5(y + 3) =	3(y + 3) + 24	
6(y - 6) =	12	Combine __(1)	2(y + 3) =	24	Subtract 3(y + 3) on Both
y - 6 =	2	Divide __(2)__on both	y + 3 =	12	Divide __(4)__on both
y =	8	Add __(3)__on both	y =	9	Subtract __(5)__on both

Abby's first step is **different** from Peter's first step because:
Ungraded open response:

H)

Peter's Solution	**Abby's Solution**

4(y - 6) + 2(y - 6)	=	12	5(y + 3)	=	3(y + 3) + 24
6(y - 6)	=	12 Combine __(1)	2(y + 3)	=	24 Subtract 3(y + 3) on Both
y - 6	=	2 Divide __(2)__on both	y + 3	=	12 Divide __(4)__on both
y	=	8 Add __(3)__on both	y	=	9 Subtract __(5)__on both

If you were to use Abby's method to solve the following equation, what would be the appropriate first step?

5(b + 6) = 3(b + 6) + 32
Multiple choice:

- ✓ 2(b + 6) = 32
- ✗ 5b + 30 = 3b + 18 + 32
- ✗ 5(b + 6) - 32 = 3(b + 6)
- ✗ 5(b + 6) = 3b + 18 + 32

I)

Peter's Solution

4(y - 6) + 2(y - 6)	=	12	5(y + 3)	=	3(y + 3) + 24
6(y - 6)	=	12 Combine __(1)	2(y + 3)	=	24 Subtract 3(y + 3) on Both
y - 6	=	2 Divide __(2)__on both	y + 3	=	12 Divide __(4)__on both
y	=	8 Add __(3)__on both	y	=	9 Subtract __(5)__on both

Abby's Solution

Solve the equation for b.

5(b + 6) = 3(b + 6) + 32
Algebra:

- ✓ 10

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 10

43) Assistment #75830 "75830 - 73674 - Rittle-Johnson CPT, Day 2-2"

A)

Peter's Solution

4(x + 5)	=	2(x + 5) + 8	3(x - 2) + 5(x - 2)	=	32
4x + 20	=	2x + 10 + 8 Distribute __(1)	3x - 6 + 5x - 10	=	32 Distribute __(6)__
4x + 20	=	2x + 18 Combine __(2)	8x - 16	=	32 Combine __(7)__
2x + 20	=	18 Subtract __(3)__on both	8x	=	48 Add __(8)__on both
2x	=	-2 Subtract __(4)__on both	x	=	6 Divide __(9)__on both
x	=	-1 Divide __(5)__on both			

Abby's Solution

Fill in (1)

Multiple choice:

- ✓ 4 and 2 into the (x + 5)'s
- ✗ 4(x + 5) into 2(x + 5)
- ✗ 4 into (x + 5)
- ✗ 2 into (x + 5)

B)

Peter's Solution			**Abby's Solution**		
4(x + 5) =	2(x + 5) + 8		3(x - 2) + 5(x - 2) =	32	
4x + 20 =	2x + 10 + 8	Distribute __(1)	3x - 6 + 5x - 10 =	32	Distribute __(6)__
4x + 20 =	2x + 18	Combine __(2)	8x - 16 =	32	Combine __(7)__
2x + 20 =	18	Subtract __(3)__on both	8x =	48	Add __(8)__on both
2x =	-2	Subtract __(4)__on both	x =	6	Divide __(9)__on both
x =	-1	Divide __(5)__on both			

Fill in (2)

Multiple choice:

- ✓ 10 and 8
- ✗ 20 and 18
- ✗ 2x, 10, and 8
- ✗ 2x and 18

C)

Peter's Solution			**Abby's Solution**		
4(x + 5) =	2(x + 5) + 8		3(x - 2) + 5(x - 2) =	32	
4x + 20 =	2x + 10 + 8	Distribute __(1)	3x - 6 + 5x - 10 =	32	Distribute __(6)__
4x + 20 =	2x + 18	Combine __(2)	8x - 16 =	32	Combine __(7)__
2x + 20 =	18	Subtract __(3)__on both	8x =	48	Add __(8)__on both
2x =	-2	Subtract __(4)__on both	x =	6	Divide __(9)__on both
x =	-1	Divide __(5)__on both			

Fill in (3)

Algebra:

- ✓ 2x

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 2x

D)

Peter's Solution		**Abby's Solution**	
$4(x + 5) = 2(x + 5) + 8$		$3(x - 2) + 5(x - 2) = 32$	
$4x + 20 = 2x + 10 + 8$	Distribute __(1)	$3x - 6 + 5x - 10 = 32$	Distribute __(6)__
$4x + 20 = 2x + 18$	Combine __(2)	$8x - 16 = 32$	Combine __(7)__
$2x + 20 = 18$	Subtract __(3)__on both	$8x = 48$	Add __(8)__on both
$2x = -2$	Subtract __(4)__on both	$x = 6$	Divide __(9)__on both
$x = -1$	Divide __(5)__on both		

Fill in (4)

Algebra:

✓ 20

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 20

E)

Peter's Solution		**Abby's Solution**	
$4(x + 5) = 2(x + 5) + 8$		$3(x - 2) + 5(x - 2) = 32$	
$4x + 20 = 2x + 10 + 8$	Distribute __(1)	$3x - 6 + 5x - 10 = 32$	Distribute __(6)__
$4x + 20 = 2x + 18$	Combine __(2)	$8x - 16 = 32$	Combine __(7)__
$2x + 20 = 18$	Subtract __(3)__on both	$8x = 48$	Add __(8)__on both
$2x = -2$	Subtract __(4)__on both	$x = 6$	Divide __(9)__on both
$x = -1$	Divide __(5)__on both		

Fill in (5)

Algebra:

✓ 2

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 2

F)

Peter's Solution		**Abby's Solution**	
$4(x + 5) = 2(x + 5) + 8$		$3(x - 2) + 5(x - 2) = 32$	
$4x + 20 = 2x + 10 + 8$	Distribute __(1)	$3x - 6 + 5x - 10 = 32$	Distribute __(6)__
$4x + 20 = 2x + 18$	Combine __(2)	$8x - 16 = 32$	Combine __(7)__
$2x + 20 = 18$	Subtract __(3)__on both	$8x = 48$	Add __(8)__on both
$2x = -2$	Subtract __(4)__on both	$x = 6$	Divide __(9)__on both
$x = -1$	Divide __(5)__on both		

Fill in (6)

Multiple choice:

- ✓ 3 and 5 into the (x - 2)'s
- ✗ 3(x - 2) into 5(x - 2)
- ✗ 3 into (x - 2)
- ✗ 5 into (x - 2)

G)

Peter's Solution		**Abby's Solution**	
$4(x + 5) = 2(x + 5) + 8$		$3(x - 2) + 5(x - 2) = 32$	
$4x + 20 = 2x + 10 + 8$	Distribute __(1)	$3x - 6 + 5x - 10 = 32$	Distribute __(6)__
$4x + 20 = 2x + 18$	Combine __(2)	$8x - 16 = 32$	Combine __(7)__
$2x + 20 = 18$	Subtract __(3)__on both	$8x = 48$	Add __(8)__on both
$2x = -2$	Subtract __(4)__on both	$x = 6$	Divide __(9)__on both
$x = -1$	Divide __(5)__on both		

Fill in (7)

Multiple choice:

- ✓ 3x and 5x, AND -6 and -10
- ✗ 3x and -6
- ✗ 5x and -10

✘ 3x and 5x
✘ 3x and -6, AND 5x and 10

H)

Peter's Solution		**Abby's Solution**	
4(x + 5) = 2(x + 5) + 8		3(x - 2) + 5(x - 2) = 32	
4x + 20 = 2x + 10 + 8	Distribute __(1)	3x - 6 + 5x - 10 = 32	Distribute __(6)__
4x + 20 = 2x + 18	Combine __(2)	8x - 16 = 32	Combine __(7)__
2x + 20 = 18	Subtract __(3)__on both	8x = 48	Add __(8)__on both
2x = -2	Subtract __(4)__on both	x = 6	Divide __(9)__on both
x = -1	Divide __(5)__on both		

Fill in (8)

Algebra:

✓ 16

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 16

I)

Peter's Solution		**Abby's Solution**	
4(x + 5) = 2(x + 5) + 8		3(x - 2) + 5(x - 2) = 32	
4x + 20 = 2x + 10 + 8	Distribute __(1)	3x - 6 + 5x - 10 = 32	Distribute __(6)__
4x + 20 = 2x + 18	Combine __(2)	8x - 16 = 32	Combine __(7)__
2x + 20 = 18	Subtract __(3)__on both	8x = 48	Add __(8)__on both
2x = -2	Subtract __(4)__on both	x = 6	Divide __(9)__on both
x = -1	Divide __(5)__on both		

Fill in (9)

Algebra:

✓ 8

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 8

J)

Peter's Solution		**Abby's Solution**	
$4(x + 5) = 2(x + 5) + 8$		$3(x - 2) + 5(x - 2) = 32$	
$4x + 20 = 2x + 10 + 8$	Distribute __(1)	$3x - 6 + 5x - 10 = 32$	Distribute __(6)__
$4x + 20 = 2x + 18$	Combine __(2)	$8x - 16 = 32$	Combine __(7)__
$2x + 20 = 18$	Subtract __(3)__on both	$8x = 48$	Add __(8)__on both
$2x = -2$	Subtract __(4)__on both	$x = 6$	Divide __(9)__on both
$x = -1$	Divide __(5)__on both		

Is Peter's way the same as Abby's? Explain your reasoning.
Ungraded open response:

K)

Peter's Solution		**Abby's Solution**	
$4(x + 5) = 2(x + 5) + 8$		$3(x - 2) + 5(x - 2) = 32$	
$4x + 20 = 2x + 10 + 8$	Distribute __(1)	$3x - 6 + 5x - 10 = 32$	Distribute __(6)__
$4x + 20 = 2x + 18$	Combine __(2)	$8x - 16 = 32$	Combine __(7)__
$2x + 20 = 18$	Subtract __(3)__on both	$8x = 48$	Add __(8)__on both
$2x = -2$	Subtract __(4)__on both	$x = 6$	Divide __(9)__on both
$x = -1$	Divide __(5)__on both		

On a timed test, whose method would you rather solve? Explain your reasoning.
Ungraded open response:

44) Assistment #75795 "75795 - 72468 - Rittle-Johnson CPT, Day 2-3a"
Solve this equation for f:

$6 + 2(f + 2) = 4(f + 2)$
Algebra:
✓ 1

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 1

45) Assistment #75788 "75788 - 72473 - Rittle-Johnson CPT, Day 2-3a'"
Solve this equation for c:

$1 + 5(c - 2) = 6(c - 2)$
Algebra:
✓ 3

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 3

46) Assistment #75815 "75815 - 72469 - Rittle-Johnson CPT, Day 2-3b"

Solve this equation for c:

4(c + 2) + 4(c + 2) = 8

Algebra:

✓ -1

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in -1

47) Assistment #78554 "78554 - 72474 - Rittle-Johnson CPT, Day 2-3b'"

Solve this equation for b:

10 = 3(b + 3) + 2(b + 3)

Algebra:

✓ -1

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in -1

48) Duplicate assistment: Assistment #74519 "74519 - Finished Day 2" was not displayed.

49) Assistment #75905 "75905 - 73934 - Rittle-Johnson CPT, Day 3-1"

A)

Eric's Solution

$\frac{4}{5}(x + 3) = 12$

$x + 3 = 15$ Divide __(1)__ on both

$x = 12$ Subtract __(2)__ on both

Alice's Solution

$3(x - 5) + 12 = 7(x - 5)$

$12 = 4(x - 5)$ Subtract __(3)__ on both

$3 = x - 5$ Divide __(4)__ on both

$8 = x$ Add __(5)__ on both

Fill in (1)

Algebra:

✓ 4/5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 4/5

B)

Eric's Solution

$\frac{4}{5}(x + 3) = 12$

$x + 3 = 15$ Divide __(1)__on both

$x = 12$ Subtract __(2)__on both

Alice's Solution

$3(x - 5) + 12 = 7(x - 5)$

$12 = 4(x - 5)$ Subtract __(3)__on both

$3 = x - 5$ Divide __(4)__on both

$8 = x$ Add __(5)__on both

Fill in (2)

Algebra:

✓ 3

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 3

C)

Eric's Solution

$\frac{4}{5}(x + 3) = 12$

$x + 3 = 15$ Divide __(1)__on both

$x = 12$ Subtract __(2)__on both

Alice's Solution

$3(x - 5) + 12 = 7(x - 5)$

$12 = 4(x - 5)$ Subtract __(3)__on both

$3 = x - 5$ Divide __(4)__on both

$8 = x$ Add __(5)__on both

Fill in (3)

Algebra:

✓ 3(x-5)

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 3(x - 5)

D)

Eric's Solution			**Alice's Solution**		
$\frac{4}{5}(x + 3)$	=	12	3(x - 5) + 12	=	7(x - 5)
x + 3	=	15 Divide __(1)__on both	12	=	4(x - 5) Subtract __(3)__on both
x	=	12 Subtract __(2)__on both	3	=	x - 5 Divide __(4)__on both
			8	=	x Add __(5)__on both

Fill in (4)

Algebra:

✓ 4

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 4

E)

Eric's Solution			**Alice's Solution**		
$\frac{4}{5}(x + 3)$	=	12	3(x - 5) + 12	=	7(x - 5)
x + 3	=	15 Divide __(1)__on both	12	=	4(x - 5) Subtract __(3)__on both
x	=	12 Subtract __(2)__on both	3	=	x - 5 Divide __(4)__on both
			8	=	x Add __(5)__on both

Fill in (5)

Algebra:

✓ 5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 5

F)

Eric's Solution			**Alice's Solution**		
$\frac{4}{5}(x + 3)$	=	12	3(x - 5) + 12	=	7(x - 5)

x + 3	= 15	Divide __(1)__on both	12 =	4(x - 5)	Subtract __(3)__on both
x	= 12	Subtract __(2)__on both	3 =	x - 5	Divide __(4)__on both
			8 =	x	Add __(5)__on both

Which of the two problems is easier to solve? Why?
Ungraded open response:

G)

Eric's Solution **Alice's Solution**

$\frac{4}{5}(x + 3) = 12$ $3(x - 5) + 12 = 7(x - 5)$

x + 3	= 15	Divide __(1)__on both	12 =	-4(x - 5)	Subtract __(3)__on both
x	= 12	Subtract __(2)__on both	3 =	x - 5	Divide __(4)__on both
			8 =	x	Add __(5)__on both

Could Eric's first step be the same first step on Alice's problem? Explain your reasoning.
Ungraded open response:

H)

Eric's Solution **Alice's Solution**

$\frac{4}{5}(x + 3) = 12$ $3(x - 5) + 12 = 7(x - 5)$

x + 3	= 15	Divide __(1)__on both	12 =	4(x - 5)	Subtract __(3)__on both
x	= 12	Subtract __(2)__on both	3 =	x - 5	Divide __(4)__on both
			8 =	x	Add __(5)__on both

If you were to use Eric's method to solve the following equation, what would be the appropriate first step?

$\frac{4}{5}(c - 5) = 16$

Multiple choice:

- ✓ c - 5 = 20
- ✗ (4/5)c - (20/5) = 16
- ✗ (4/5)(c - 5) - 16 = 0
- ✗ (1/5)(4c - 20) = 16

I)

Eric's Solution **Alice's Solution**

$\frac{4}{5}(x + 3) = 12$

$3(x - 5) + 12 = 7(x - 5)$

$x + 3 = 15$ Divide __(1)__on both
$x = 12$ Subtract __(2)__on both

$12 = 4(x - 5)$ Subtract __(3)__on both
$3 = x - 5$ Divide __(4)__on both
$8 = x$ Add __(5)__on both

Solve the equation for c.

$\frac{4}{5}(c - 5) = 16$

Algebra:

✓ 25

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 25

50) Assistment #75885 "75885 - 74346 - Rittle-Johnson CPT, Day 3-2"

A)

Nathan's Solution

$2(y - 2) + 5 = 7(y - 2)$
$2y - 4 + 5 = 7y - 14$ Distribute __(1)
$2y + 1 = 7y - 14$ Combine __(2)
$1 = 5y - 14$ Subtract __(3)__on both
$15 = 5y$ Add __(4)__on both
$3 = y$ Divide __(5)__on both

Alice's Solution

$\frac{4}{5}(y + 2) = 16$
$\frac{4}{5}y + \frac{8}{5} = 16$ Distribute __(6)__
$\frac{4}{5}y = \frac{72}{5}$ Subtract __(7)__on both
$y = 18$ Divide __(8)__on both

Fill in (1)

Multiple choice:

✓ 7 and 2 into the (y + 2)'s
✗ 5 into (y + 2)
✗ 7 into (y + 2)
✗ 2 into (y + 2)

B)

Nathan's Solution

$2(y - 2) + 5 = 7(y - 2)$

$2y - 4 + 5 = 7y - 14$ Distribute __(1)

$2y + 1 = 7y - 14$ Combine __(2)

$1 = 5y - 14$ Subtract __(3)__on both

$15 = 5y$ Add __(4)__on both

$3 = y$ Divide __(5)__on both

Alice's Solution

$\frac{4}{5}(y + 2) = 16$

$\frac{4}{5}y + \frac{8}{5} = 16$ Distribute __(6)__

$\frac{4}{5}y = \frac{72}{5}$ Subtract __(7)__on both

$y = 18$ Divide __(8)__on both

Fill in (2)

Multiple choice:

✓ -4 and 5

✗ -14 and 1

✗ 2y, -4, and 5

✗ 2y and 1

C)

Nathan's Solution

$2(y - 2) + 5 = 7(y - 2)$

$2y - 4 + 5 = 7y - 14$ Distribute __(1)

$2y + 1 = 7y - 14$ Combine __(2)

$1 = 5y - 14$ Subtract __(3)__on both

$15 = 5y$ Add __(4)__on both

$3 = y$ Divide __(5)__on both

Alice's Solution

$\frac{4}{5}(y + 2) = 16$

$\frac{4}{5}y + \frac{8}{5} = 16$ Distribute __(6)__

$\frac{4}{5}y = \frac{72}{5}$ Subtract __(7)__on both

$y = 18$ Divide __(8)__on both

Fill in (3)

Algebra:

✓ 2y

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 2y

D)

Nathan's Solution			**Alice's Solution**		
$2(y - 2) + 5 = 7(y - 2)$			$\frac{4}{5}(y + 2) = 16$		
$2y - 4 + 5 = 7y - 14$		Distribute __(1)	$\frac{4}{5}y + \frac{8}{5} = 16$		Distribute __(6)__
$2y + 1 = 7y - 14$		Combine __(2)	$\frac{4}{5}y = \frac{72}{5}$		Subtract __(7)__on both
$1 = 5y - 14$	Subtract __(3)__on both		$y = 18$	Divide __(8)__on both	
$15 = 5y$	Add __(4)__on both				
$3 = y$	Divide __(5)__on both				

Fill in (4)

Algebra:

✓ 14

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 14

E)

Nathan's Solution			**Alice's Solution**		
$2(y - 2) + 5 = 7(y - 2)$			$\frac{4}{5}(y + 2) = 16$		
$2y - 4 + 5 = 7y - 14$		Distribute __(1)	$\frac{4}{5}y + \frac{8}{5} = 16$		Distribute __(6)__
$2y + 1 = 7y - 14$		Combine __(2)	$\frac{4}{5}y = \frac{72}{5}$		Subtract __(7)__on both
$1 = 5y - 14$	Subtract __(3)__on both		$y = 18$	Divide __(8)__on both	
$15 = 5y$	Add __(4)__on both				
$3 = y$	Divide __(5)__on both				

Fill in (5)

Algebra:

✓ 5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 5

F)

Nathan's Solution		**Alice's Solution**	
$2(y - 2) + 5 = 7(y - 2)$		$\frac{4}{5}(y + 2) = 16$	
$2y - 4 + 5 = 7y - 14$	Distribute __(1)	$\frac{4}{5}y + \frac{8}{5} = 16$	Distribute __(6)__
$2y + 1 = 7y - 14$	Combine __(2)	$\frac{4}{5}y = \frac{72}{5}$	Subtract __(7)__ on both
$1 = 5y - 14$	Subtract __(3)__ on both	$y = 18$	Divide __(8)__ on both
$15 = 5y$	Add __(4)__ on both		
$3 = y$	Divide __(5)__ on both		

Fill in (6)

Multiple choice:

- ✓ 4/5 into (y + 2)
- ✗ y into 4/5
- ✗ 4/5 into 8/5
- ✗ 8/5 into (y + 2)

G)

Nathan's Solution		**Alice's Solution**	
$2(y - 2) + 5 = 7(y - 2)$		$\frac{4}{5}(y + 2) = 16$	
$2y - 4 + 5 = 7y - 14$	Distribute __(1)	$\frac{4}{5}y + \frac{8}{5} = 16$	Distribute __(6)__
$2y + 1 = 7y - 14$	Combine __(2)	$\frac{4}{5}y = \frac{72}{5}$	Subtract __(7)__ on both
$1 = 5y - 14$	Subtract __(3)__ on both	$y = 18$	Divide __(8)__ on both
$15 = 5y$	Add __(4)__ on both		
$3 = y$	Divide __(5)__ on both		

Fill in (7)

Algebra:

- ✓ 8/5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 8/5

H)

Nathan's Solution		**Alice's Solution**	
$2(y - 2) + 5 = 7(y - 2)$		$\frac{4}{5}(y + 2) = 16$	
$2y - 4 + 5 = 7y - 14$	Distribute __(1)	$\frac{4}{5}y + \frac{8}{5} = 16$	Distribute __(6)__
$2y + 1 = 7y - 14$	Combine __(2)	$\frac{4}{5}y = \frac{72}{5}$	Subtract __(7)__on both
$1 = 5y - 14$	Subtract __(3)__on both	$y = 18$	Divide __(8)__on both
$15 = 5y$	Add __(4)__on both		
$3 = y$	Divide __(5)__on both		

Fill in (8)

Algebra:

✔ 4/5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 4/5

I)

Nathan's Solution		**Alice's Solution**	
$2(y - 2) + 5 = 7(y - 2)$		$\frac{4}{5}(y + 2) = 16$	
$2y - 4 + 5 = 7y - 14$	Distribute __(1)	$\frac{4}{5}y + \frac{8}{5} = 16$	Distribute __(6)__
$2y + 1 = 7y - 14$	Combine __(2)	$\frac{4}{5}y = \frac{72}{5}$	Subtract __(7)__on both
$1 = 5y - 14$	Subtract __(3)__on both	$y = 18$	Divide __(8)__on both
$15 = 5y$	Add __(4)__on both		
$3 = y$	Divide __(5)__on both		

Describe 2 ways these students' **solutions** are **similar**.

Ungraded open response:

✓ 6

J)

Nathan's Solution		**Alice's Solution**	
$2(y - 2) + 5 = 7(y - 2)$		$\frac{4}{5}(y + 2) = 16$	
$2y - 4 + 5 = 7y - 14$	Distribute __(1)	$\frac{4}{5}y + \frac{8}{5} = 16$	Distribute __(6)__
$2y + 1 = 7y - 14$	Combine __(2)	$\frac{4}{5}y = \frac{72}{5}$	Subtract __(7)__on both
$1 = 5y - 14$	Subtract __(3)__on both	$y = 18$	Divide __(8)__on both
$15 = 5y$	Add __(4)__on both		
$3 = y$	Divide __(5)__on both		

If the problem were 8(j + 2) = 4(j + 2) + 12, whose first step would work better? Explain your reasoning.

Ungraded open response:

51) Assistment #75919 "75919 - 72477 - Rittle-Johnson CPT, Day 3-3a"

Solve this equation for h:

$$\frac{1}{4}(h - 4) = 1$$

Algebra:

✓ 8

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 8

52) Assistment #75928 "75928 - 72477 - Rittle-Johnson CPT, Day 3-3a"

Solve this equation for f:

1

(f - 3) = 1
5

Algebra:
✓ 8

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 8

53) Assistment #75895 "75895 - 72471 - Rittle-Johnson CPT, Day 3-3b"

Solve this equation for x:

4(x - 4) = 1 + 3(x - 4)

Algebra:
✓ 5

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 5

54) Assistment #75950 "75950 - 72472 - Rittle-Johnson CPT, Day 3-3b'"

Solve this equation for y:

8 + 2(y - 5) = 6(y - 5)
Algebra:
✓ 7

Hints:

There is no tutoring for this problem.

The next hint reveals the answer.

Type in 7

55) Duplicate assistment: Assistment #74520 "74520 - Finished Day 3" was not displayed.

Appendix C: Skills Built for ASSISTment

Algebra

Skill

Pre Algebra
Equation Solving

Class

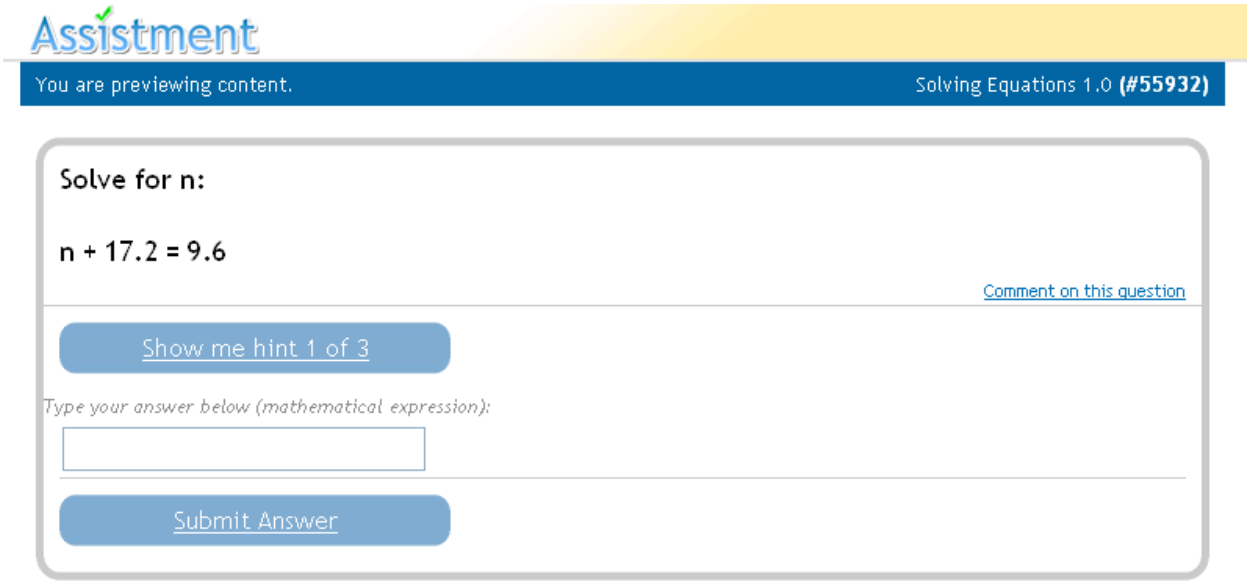
Mastery Problem Set
#8744

Number of Templates
7

Number to Master
3 in-a-row

Number of Attempts
10

LEVEL 1



- **55932**
  - x + A.0 = B.0
    - x + 15.2 = 8.5
  - 0.0 < A, B < 20.0

Offered by Ethan Truong ‘11

- uses decimals

- **56521**
  - Ax + Bx = C
    - 7x + 9x = 15
  - 2 < A, B < 12
  - -10 < C < 10

56559

Ax – Bx = C

-9x – 3x = -6

2 < B < 12

B < C < B+10

-10 < C < 10

56561

A – Bx = C

6 – 9x = 8

2 < A, B < 12

-10 < C < 10

58064

A.0x + B.0 = C.0

12.66x + 3.59 = 9.52

Uses decimals of up to two decimal places

0.0 < A,B,C < 15.0

58080

A.0 + x + B.0 = C.0

0.93 + x + 7.78 = 1.91

Uses decimals of up to two decimal places

0.0 < A,B,C < 15.0

58084

X- A.0=B.0

x - 4.03 = 0.43

Uses decimals of up to two decimal places

0.0 < A,B < 15.0

1) Assistment #83832 "83832 - 58064 - Solve - decimal"

Solve for x.
11.92 + x + 2.95 = 4.23

Algebra:

✓ -10.64

Hints:

Identify the variable you are solving for

11.92 + x + 2.95 = 4.23

Isolate the variable

11.92 - 11.92 + x + 2.95 - 2.95 = 4.23 - 11.92 - 2.95
0 + x + 2.95 - 2.95 = -7.69 - 2.95
x + 0 = -10.64

The variable x is -10.64
Type in -10.64

2) Assistment #83833 "83833 - 58064 - Solve - decimal"

Solve for x.
9.78x + 0.39 = 2.13

Answer as a fraction.

Algebra:

✓ 0.177914110429448

Hints:

Start to isolate the variable you are solving for:

9.78x + 0.39 - 0.39 = 2.13 - 0.39

9.78x + 0 = 2.13 - 0.39

9.78x = 1.74

$$\frac{9.78x}{9.78} = \frac{1.74}{9.78}$$

$$x = \frac{1.74}{}$$

9.78

The variable x is 1.74/9.78.
Type in 1.74/9.78

3) Assistment #83834 "83834 - 55932 - Solving Equations 1.0"

Solve for n:

$n + 4.9 = 9.2$

Algebra:

✓ 4.3

✗ 14.1

✗ -4.3

Hints:

Identify the variable you are trying to solve:

$n + 4.9 = 9.2$

Isolate the variable you are solving for:

$$\begin{aligned} n + 4.9 - 4.9 &= 9.2 - 4.9 \\ n + 0 &= 5.7 \\ n &= 5.7 \end{aligned}$$

The variable n is 5.7

Enter 5.7

4) Assistment #83836 "83836 - 30461 - Solve for x (1.1)"

Solve for x.

$4x + 6x = 7$

Answer as a fraction.

Algebra:

✓ 0.7

Hints:

Combine like terms:

$$\begin{aligned} 4x + 6x &= 7 \\ 10x &= 7 \end{aligned}$$

Isolate the variable:

$10x = 7$

$$\frac{10}{10} = \frac{7}{10}$$

$$x = \frac{7}{10}$$

The variable x is 7/10

Type in 7/10

5) Assistment #83837 "83837 - 58064 - Solve - decimal"

Solve for x.
x - 0.97 = 6.18

Algebra:

✓ 7.15

Hints:

Identify the variable you are solving for

x - 0.97 = 6.18

Isolate the variable

x - 0.97 + 0.97 = 6.18 + 0.97

x = 7.15

The variable x is 7.15
Type in 7.15

6) Assistment #83838 "83838 - 30835 - Solve for x (1.4)"

Solve for x.
6 - 5x = -9

Answer as a fraction.

Algebra:

✓ 3

Hints:

$6 - 5x = -9$

$6 - 5x - 6 = -9 - 6$

$-5x = -15$

$-5x = -15$

$\frac{-5x}{-5} = \frac{-15}{-5}$

$x = \frac{15}{5}$

The variable x is 15/5.

Type in 15/5

Problem Set "Sequence #10071" id:[10071] A127

1) Assistment #58064 "58064 - Solve - decimal"

Solve for x.
%v{c1}x + %v{c2} = %v{c3}

Answer as a fraction.

Algebra:

✓ %v{(c3-c2)/c1}

Hints:

Start to isolate the variable you are solving for:

%v{c1}x + %v{c2} - %v{c2} = %v{c3} - %v{c2}

%v{c1}x + 0 = %v{c3} - %v{c2}

%v{c1}x = %v{c3-c2}

$$\frac{\%v\{c1\}x}{\%v\{c1\}} = \frac{\%v\{c3-c2\}}{\%v\{c1\}}$$

$$x = \frac{\%v\{c3-c2\}}{\%v\{c1\}}$$

The variable x is %v{c3-c2}/%v{c1}.
Type in %v{c3-c2}/%v{c1}

2) Assistment #55932 "55932 - Solving Equations 1.0"

Solve for n:

n + %v{x1 + d1/10} = %v{x2 + d2/10}

Algebra:

✓ %v{x2 + d2/10 - x1 - d1/10}

✗ %v{x2 + d2/10 + x1 + d1/10}

✗ %v{x1 + d1/10 - x2 - d2/10}

Hints:

Identify the variable you are trying to solve:
n + %v{x1 + d1/10} = %v{x2 + d2/10}

Isolate the variable you are solving for:

n + %v{x1 + d1/10} - %v{x1 + d1/10} = %v{x2 + d2/10} - %v{x1 + d1/10}
n + 0 = %v{x2 + d1/10 - x1 - d2/10}
n = %v{x2 + d1/10 - x1 - d2/10}

The variable n is %v{x2 + d1/10 - x1 - d2/10}

Enter %v{x2 + d1/10 - x1 - d2/10}

3) Assistment #56559 "56559 - 30834 - Solve for x (1.3)"

Solve for x.

%v{c1}x - %v{c2}x = %v{c3}

Answer as a fraction.

Algebra:

✓ %v{c3/(c1-c2)}

Hints:

%v{c1}x - %v{c2}x = %v{c3}
%v{c1-c2}x = %v{c3}

%v{c1-c2}x = %v{c3}

%v{c1-c2}x %v{c3}
=
%v{c1-c2} %v{c1-c2}

%v{c3}
x =
%v{c1-c2}

The variable x is %v{c3}/%v{c1-c2}.

Type in %v{c3}/%v{c1-c2}

4) Assistment #56561 "56561 - 30835 - Solve for x (1.4)"

Solve for x.

%v{c1} - %v{c2}x = %v{c3}

Answer as a fraction.

Algebra:

✓ %v{(c3-c1)/(-1*c2)}

Hints:

%v{c1} - %v{c2}x = %v{c3}
%v{c1} - %v{c2}x - %v{c1} = %v{c3} - %v{c1}
-%v{c2}x = %v{c3-c1}

-%v{c2}x = %v{c3-c1}

-%v{c2}x = %v{c3-c1}

-%v{c2} = -%v{c2}

x = %v{-1*(c3-c1)}

%v{c2}

The variable x is %v{-1*(c3-c1)}/%v{c2}.

Type in %v{-1*(c3-c1)}/%v{c2}

5) Assistment #58080 "58080 - 58064 - Solve - decimal"

Solve for x.
%v{c1} + x + %v{c2} = %v{c3}

Algebra:

✓ %v{c3-c2-c1}

Hints:

Identify the variable you are solving for

%v{c1} + x + %v{c2} = %v{c3}

Isolate the variable

%v{c1} - %v{c1} + x + %v{c2} - %v{c2} = %v{c3} - %v{c1} - %v{c2}
0 + x + %v{c2} - %v{c2} = %v{c3-c1} - %v{c2}
x + 0 = %v{c3-c1-c2}

The variable x is %v{c3-c1-c2}
Type in %v{c3-c1-c2}

6) Assistment #56521 "56521 - 30461 - Solve for x (1.1)"

Solve for x.
%v{c1}x + %v{c2}x = %v{c3}

Answer as a fraction.

Algebra:

✓ %v{c3/(c2+c1)}

Hints:

Combine like terms:
%v{c1}x + %v{c2}x = %v{c3}
%v{c1+c2}x = %v{c3}

Isolate the variable:

%v{c1+c2}x = %v{c3}

%v{c1+c2}x %v{c3}
=
%v{c1+c2} %v{c1+c2}

%v{c3}
x =
%v{c1+c2}

The variable x is %v{c3}/%v{c1+c2}

Type in %v{c3}/%v{c1+c2}

7) Assistment #58084 "58084 - 58064 - Solve - decimal"

Solve for x.
x - %v{c1} = %v{c2}

Algebra:

✓ %v{c1+c2}

Hints:

Identify the variable you are solving for

x - %v{c1} = %v{c2}

Isolate the variable

x - %v{c1} + %v{c1} = %v{c2} + %v{c1}

x = %v{c2+c1}

The variable x is %v{c1+c2}
Type in %v{c1+c2}

Algebra

Skill Class

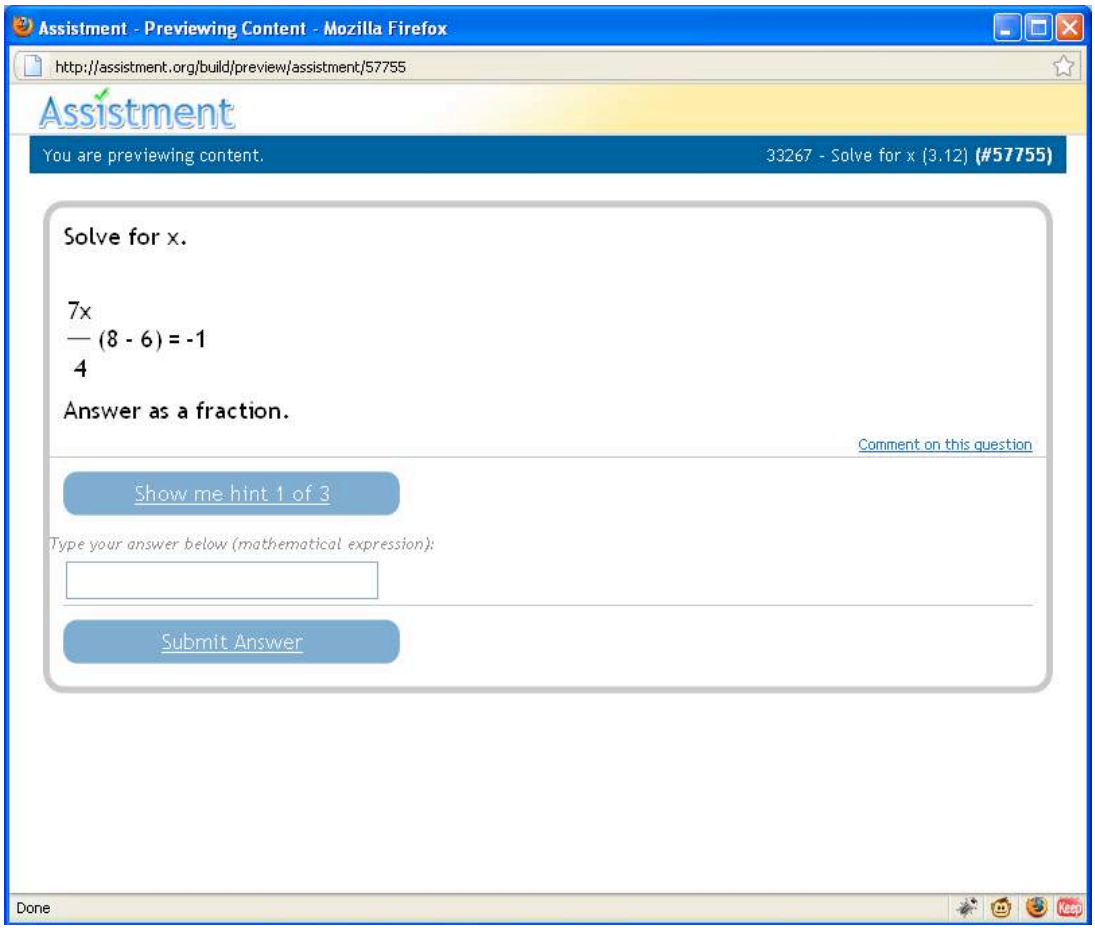
Solving Equations

Mastery Problem Set
#10263

Number of Templates
7

Number to Master
3 in-a-row

Number of Attempts
10



Offered by Ethan Truong ‘11

MASTERY

57602

(A/B)(Cx + D) = E
(5/9) (8x + 4) = 7
2 < A,B,C,D <12
-10 < E < 10

60577

A(Bx-C)+D=Ex+F
5(10x - 3) + 9 = 4x + 4
2 < A,B,C,D,E,F < 12
A*B =/=E

60597

A(Bx-C)+D=Ex-F
5(6x - 5) + 3 = 11x – 5
2 < A,B,C,D,E,F < 12
A*B =/=E

57754

A/F(Bx-Cx)=Dx +E
10/3(11x - 6x) = -6x + 8
2 < A,B,C,D,E < 12; D =/= (A/F)(B-C)

57755

Ax/B(C-D)=E
10x/4(6 - 8) = 8
2 < A,B,C < 12
-10 < D < 10

57756

Ax/B(C-D)=Ex + F
2x/5(7 - 6) = -7x + 2
2 < A,B,C,D,E,F < 12; A*C/B =/= E

58263

x-A=B/C(D-Ex)
x - 11 = 9/6(2 - 4x)
2 < A,B,C,D,E < 12
B*E/C =/= 1

Mastery Problem Set	Number of Templates
#10264	8
Number to Master	Number of Attempts
3 in-a-row	10

Offered by Ethan Truong ‘11

LEVEL 2

56584

Ax/B + C = D

10x/4 + 3 = 6

2 < A, B, C < 12

-10 < D < 10

57353

Ax/B – C = D

9x/11 – 9 = 3

2 < A,B,C,D < 12

58243

Ax/B + C = D

10x/2 + 10 = 6

2 < A,B,C,D < 12

57602

(A/B)(Cx + D) = E

(5/9) (8x + 4) = 7

2 < A,B,C,D <12

-10 < E < 10

57754

A/F(Bx-Cx)=Dx +E

10/3(11x - 6x) = -6x + 8

2 < A,B,C,D,E < 12; D =/= (A/F)(B-C)

57755

Ax/B(C-D)=E

10x/4(6 - 8) = 8

2 < A,B,C < 12

-10 < D < 10

57756

Ax/B(C-D)=Ex + F

2x/5(7 - 6) = -7x + 2

2 < A,B,C,D,E,F < 12; A*C/B =/= E

58263

x-A=B/C(D-Ex)

x - 11 = 9/6(2 - 4x)

2 < A,B,C,D,E < 12

B*E/C =/= 1

Mastery Problem Set
#10265

Number of Templates
7

Number to Master
3 in-a-row

Number of Attempts
10

LEVEL 1

58208

A(B + x) = C(x + D)
3(5 + x) = 7(8 + x)
2 < A,B,D < 12
-5 < C < 19
A =/= C

56563

A(Bx + C) = D
6(11x + 10) = -4
2 < A,B,C < 12
-10 < D < 10

56576

A(Bx + Cx) = D
2(7x + 9x) = -1
2 < A,B,C < 12
-10 < D < 10

56578

Ax(B + C) = D
2x(9 + 5) = 2
2 < A,B,C < 12
-10 < D < 10

56573

A(Bx – C) = D
9(2x - 4) = -1
2 < A,B,C < 12
-10 < D < 10

56599

Ax – B = Cx + D
8x-9=6x+10
2 < A,B,D <12
A+1< C < A+5

Offered by Ethan Truong ‘11

57750

A(Bx- Cx)=D

7(7x - 4x) = 7

2 < A,B,C <12; B=/=C

-10 < D < 10

Problem Set "Equation Solving Iteration Print" id:[10070] A136

1) Assistment #83814 "83814 - 33267 - Solve for x (3.12)"

Solve for x.

$$\frac{8x}{6}(7 - 6) = 1$$

Answer as a fraction.

Algebra:

✓ 0.75

Hints:

$$\frac{8x}{6}(7 - 6) = 1$$

$$\frac{8x}{6}(1) = 1$$

$$\frac{8x}{6} * 1 = 1$$

$$\frac{8x}{6} = 1$$

$$\frac{8x}{6} = 1$$

$$8x * 6 = 1 * 6$$

$$8x = 6$$

$$8x = 6$$

$$\frac{8x}{} = 6$$

$\frac{8}{8}$

$x = \frac{6}{8}$

The variable x is 6/8.

Type in 6/8

2) Assistment #83815 "83815 - 33264 - Solve for x (1.10)"

Solve for x.

$5x(8 + 2) = -7$

Answer as a fraction.

Algebra:

✓ -0.14

Hints:

Add the numbers inside the paranthesis.

$5x(8 + 2) = -7$

$5x(10) = -7$

$5x(10) = -7$

$5x*10 = -7$

$50x = -7$

$50x = -7$

$\frac{50x}{50} = \frac{-7}{50}$

$x = \frac{-7}{50}$

The variable x is -7/50.

Type in -7/50

3) Assistment #83816 "83816 - 33260 - Solve for x (1.8)" A138

Solve for x.
$2(8x - 9) = -10$

Answer as a fraction.

Algebra:

✓ 0.5

Hints:

Distribute 2 to the terms in the parenthesis.

$2(8x - 9) = -10$

$2*8x - 2*9 = -10$

$16x - 18 = -10$

$16x - 18 = -10$

$16x - 18 + 18 = -10 + 18$

$16x = 8$

$16x = 8$

$$\frac{16x}{16} = \frac{8}{16}$$

$$x = \frac{8}{16}$$

The variable x is 8/16.

Type in 8/16

4) Assistment #83817 "83817 - 33261 - Solve for x (1.9)"

Solve for x.
$2(16x - 19x) = 4$

Answer as a fraction.

Algebra:

✓ -0.666666666666667

Hints:

Add the similar terms inside the paranthesis.

$2(16x - 19x) = 4$

$2(-3x) = 4$

$2(-3x) = 4$
$2*-3x = 4$
$-6x = 4$

$$-6x = 4$$

$$\frac{-6x}{-6} = \frac{4}{-6}$$

$$x = \frac{4}{-6}$$

The variable x is 4/-6.

Type in 4/-6

5) Assistment #83818 "83818 - 60577 - Solving Eq. (#32)"

Solve for x.

$11(6x - 9) + 7 = 4x + 3$

Answer as a fraction.

Algebra:

✓ 1.65151515151515

Hints:

Distribute 11 to the terms in the parenthesis.

$11(6x - 9) + 7 = 4x + 3$
$11*6x - 11*9 + 7 = 4x + 3$
$66x - 99 + 7 = 4x + 3$

Combine like terms

$66x - 99 + 7 = 4x + 3$
$66x - 106 = 4x + 3$

Isolate the variable

$66x - 4x - 106 + 106 = 4x - 4x + 3 + 106$
$62x - 0 = 0 + 109$
$62x = 109$

Divide both sides by the coefficient of x:

$$\frac{66x}{66} = \frac{109}{66}$$

$$x = \frac{109}{66}$$

The variable x is 109/66
Type in 109/66

6) Assistment #83819 "83819 - 33267 - Solve for x (3.12)"

Solve for x.

$$\frac{3x}{7} + 4 = -1$$

Answer as a fraction.

Algebra:

✔ -11.6666666666667

Hints:

Start to isolate the variable.

$$\frac{3x}{7} + 4 = -1$$

$$\frac{3x}{7} + 4 - 4 = -1 - 4$$

$$\frac{3x}{7} = -5$$

$$\frac{3x}{7} = -5$$

$$3x*7 = -5*7$$

7

3x = -35

3x = -35

$\frac{3x}{3} = \frac{-35}{3}$

$x = \frac{-35}{3}$

The variable x is -35/3.

Type in -35/3

7) Assistment #83820 "83820 - 33267 - Solve for x (3.12)"

Solve for x.

$\frac{9x}{7}(9 - 11) = 4x + 11$

Answer as a fraction.

Algebra:

✓ -1.67391304347826

Hints:

$\frac{9x}{7}(9 - 11) = 4x + 11$

$\frac{9x}{7}(-2) = 4x + 11$

$\frac{9x}{7} * -2 = 4x + 11$

$$\frac{-18x}{7} = 4x + 11$$

$$\frac{-18x}{7} = 4x + 11$$

$$\frac{-18x}{7} * 7 = (4x + 11) * 7$$

$$-18x = 28x + 77$$

$$-18x - 28x = 28x + 77 - 28x$$

$$-46x = 77$$

$$\frac{-46x}{-46} = \frac{77}{-46}$$

$$x = \frac{77}{-46}$$

The variable x is 77/-46.

Type in 77/-46

8) Assistment #83821 "83821 - Solve for x. ..."

Solve for x.

$$\frac{10}{3}(10x + 4) = 5$$

Answer as a fraction.

Algebra:

✔ -25/100

Hints:

Clear the fraction:

$$\frac{10}{3} * 3\,(10x + 4) = 5 * 3$$

3

10(10x + 4) = 15

100x + 40 = 15

Isolate the variable:
100x + 40 - 40 = 15 - 40
100x + 0 = -25
100x = -25

$$\frac{100x}{100} = \frac{-25}{100}$$

$$x = \frac{-25}{100}$$

The variable x is -25/100.

Type in -25/100.

9) Assistment #83822 "83822 - 33261 - Solve for x (1.9)"

Solve for x.
4(13x - 18x) = 0x + 3

Answer as a fraction.

Algebra:

✓ -0.15

Hints:

Add the similar terms inside the paranthesis.
4(13x - 18x) = 0x + 3
4(-5x) = 0x + 3

4(-5x) = 0x + 3
4*-5x = 0x + 3
-20x = 0x + 3

-20x - 0x = 0x - 0x + 3

$-20x = 3$

$-20x = 3$

$\frac{-20x}{-20} = \frac{3}{-20}$

$x = \frac{3}{-20}$

The variable x is 3/-20.

Type in 3/-20

10) Assistment #83823 "83823 - 33259 - Solve for x (1.7)"

Solve for x.
$3(7x + 11) = 9$

Answer as a fraction.
Algebra:

✔ -1.14285714285714

Hints:

Distribute 3 to the terms in the paranthesis.

$3(7x + 11) = 9$

$3*7x + 3*11 = 9$

$21x + 33 = 9$

$21x + 33 = 9$

$21x + 33 - 33 = 9 - 33$

$21x = -24$

$21x = -24$

$\frac{21x}{21} = \frac{-24}{21}$

$x = \frac{-24}{21}$

The variable x is -24/21.

Type in -24/21

11) Assistment #83824 "83824 - Solve for x. 9x +..."

Solve for x.
$9x + 8(6 + x) = 12(3 + x)$

Answer as a fraction.
Algebra:

✓ -2.4

Hints:

Distribute

$9x + 8(6 + x) = 12(3 + x)$
$9x + (6 * 8) + (x * 8) = (3 * 12) + (x * 12)$
$9x + 48 + 8x = 36 + 12x$

Isolate the variable

$9x + 48 - 48 + 8x - 12x = 36 - 48 + 12x - 12x$
$9x + 8x - 12x = 36 - 48$, combine like terms
$5x = -12$

Divide both sides by the coefficient of x

$$5x = -12$$
$$\frac{5x}{5} = \frac{-12}{5}$$
$$x = \frac{-12}{5}$$

The variable x is -12/5
Type in -12/5

12) Assistment #83825 "83825 - Solve for x. 10(2..."

Solve for x.
$10(2 + x) = 8(5 + x)$

Answer as a fraction.
Algebra:

✔ 10

Hints:

Distribute

10(2 + x) = 8(5 + x)
(2 * 10) + (x * 10) = (5 * 8) + (x * 8)
20 + 10x = 40 + 8x

Isolate the variable

20 + 10x - 8x= 40 + 8x - 8x
20 + 2x = 40 + 0
20 + 2x = 40
20 - 20 + 2x = 40 - 20
0 + 2x = 20
2x = 20

Continue to isolate the variable

$$\frac{2x}{2} = \frac{20}{2}$$

$$x = \frac{20}{2}$$

The variable x is 20/2
Type in 20/2

13) Assistment #83826 "83826 - Solve for x. x..."

Solve for x.

$$x - 6 = \frac{7}{7}(5 - 11x)$$

Answer as a fraction.

Algebra:

✔ 0.916666666666667

Hints:

Clear the fraction

$$(x - 6) * 7 = \frac{7}{7} * 7\ (5 - 11x)$$

(x - 6) * 7 = 7 (5 -11x)

Distribute

$(x * 7 - 6 * 7) = (5 * 7 - 11x * 7)$

$7x - 42 = 35 - 77x$

Isolate the variable

$7x + 77x - 42 = 35 - 77x + 77x$

$84x - 42 + 42 = 35 + 42$

$84x = 77$

$$\frac{84x}{84} = \frac{77}{84}$$

$$x = \frac{77}{84}$$

The variable x is 77/84

Type in 77/84

14) Assistment #83827 "83827 - 33261 - Solve for x (1.9)"

Solve for x.

$8(2x + 11x) = 4$

Answer as a fraction.

Algebra:

✓ 0.0384615384615385

Hints:

Add the similar terms inside the paranthesis.

$8(2x + 11x) = 4$

$8(13x) = 4$

$8(13x) = 4$

$8*13x = 4$

$104x = 4$

$104x = 4$

$$\frac{104x}{104} = \frac{4}{104}$$

$$x = \frac{4}{104}$$

The variable x is 4/104.

Type in 4/104

15) Assistment #83828 "83828 - Solving Eq. (#32v1)"

Solve for x.
$9(4x - 9) + 8 = 6x - 5$

Answer as a fraction.

Algebra:

✔ 2.33333333333333

Hints:

Distribute 9 to the terms in the parenthesis.

$9(4x - 9) + 8 = 6x - 5$

$9*4x - 9*9 + 8 = 6x - 5$

$36x - 81 + 8 = 6x - 5$

Combine like terms

$36x - 81 + 8 = 6x - 5$

$36x - 89 = 6x - 5$

Isolate the variable

$36x - 6x - 89 + 89 = 6x - 6x - 5 + 89$

$30x - 0 = 0 - 84$

$30x = 84$

Divide both sides by the coefficient of x:

$$\frac{36x}{36} = \frac{84}{36}$$

$$x = \frac{84}{36}$$

The variable x is 84/36

Type in 84/36

16) Assistment #83829 "83829 - Solve for x. &nbs..."

Solve for x.

$$\frac{2x}{4} + 8 = 6$$

Answer as a fraction.

Algebra:

✓ -4

Hints:

Start to isolate the variable:

$$\frac{2x}{4} + 8 - 8 = 6 - 8$$

$$\frac{2x}{4} = -2$$

Continue to isolate the variable:

$$\frac{2x}{4} * 4 = -2 * 4$$

$$2x = -8$$

$$2x = -8$$

$$\frac{2x}{2} = \frac{-8}{2}$$

$$x = \frac{-8}{2}$$

The variable x is -8/2

Type in -8/2

17) Assistment #83830 "83830 - Equation Solving" A150

Solve for x.

$7x-9=10x+8$

Answer as a fraction.

Algebra:

✔ -5.66666666666667

Hints:

$7x-9=10x+8$ Combine like terms:

$$\begin{aligned} 7x &- 9 = 10x + 8 \\ 7x - 10x &- 9 + 9 = 10x - 10x + 8 + 9 \\ -3x &+ 0 = 0 + 17 \\ -3x &= 17 \end{aligned}$$

Isolate the variable:

$$\begin{aligned} -3x &= 17 \\ \frac{-3x}{-3} &= \frac{17}{-3} \\ x &= \frac{17}{-3} \end{aligned}$$

18) Assistment #83831 "83831 - Solve for x. &nbs..."

Solve for x.

$$\frac{5x}{9} - 8 = 8$$

Algebra:

✔ 28.8

Hints:

Add both sides by 8

$$\frac{5x}{9} - 8 + 8 = 8 + 8$$

$$\frac{5x}{9} = 16$$

Multiply both sides by 9

$$\frac{5x}{9} * 9 = 16 * 9$$

Divide both sides by 5

$$\frac{5x}{5} = \frac{144}{5}$$

x = 144/5
Type in 144/5

1) Assistment #60045 "60045 - Solve for x. % v{c..."

Solve for x.

%v{c5}x + %v{c1}(%v{c2} + x) = %v{c3}(%v{c4} + x)

Answer as a fraction.

Algebra:

✓ %v{(c4*c3-c2*c1)/(c5+c1-c3)}

Hints:

Distribute

%v{c5}x + %v{c1}(%v{c2} + x)	=	%v{c3}(%v{c4} + x)
%v{c5}x + (%v{c2} * %v{c1}) + (x * %v{c1})	=	(%v{c4} * %v{c3}) + (x * %v{c3})
%v{c5}x + %v{c2*c1} + %v{c1}x	=	%v{c4*c3} + %v{c3}x

Isolate the variable

%v{c5}x + %v{c2*c1} - %v{c2*c1} + %v{c1}x - %v{c3}x	=	%v{c4*c3} - %v{c2*c1} + %v{c3}x - %v{c3}x
%v{c5}x + %v{c1}x - %v{c3}x	=	%v{c4*c3} - %v{c2*c1}, combine like terms
%v{c5+c1-c3}x	=	%v{c4*c3-c2*c1}

Divide both sides by the coefficient of x

%v{c5+c1-c3}x	=	%v{c4*c3-c2*c1}
%v{c5+c1-c3}x		%v{c4*c3-c2*c1}
	=	
%v{c5+c1-c3}		%v{c5+c1-c3}
		%v{c4*c3-c2*c1}
x	=	
		%v{c5+c1-c3}

The variable x is %v{c4*c3-c2*c1}/%v{c5+c1-c3}

Type in %v{c4*c3-c2*c1}/%v{c5+c1-c3}

2) Assistment #57755 "57755 - 33267 - Solve for x (3.12)"

Solve for x.

%v{c1}x
(%v{c5} - %v{c3}) = %v{c4}
%v{c2}

Answer as a fraction.

Algebra:

Hints:

%v{c1}x (%v{c5} - %v{c3}) = %v{c4}
%v{c2}

%v{c1}x (%v{c5 - c3}) = %v{c4}
%v{c2}

%v{c1}x * %v{c5 - c3}
= %v{c4}
%v{c2}

%v{c1 * (c5 - c3)}x
= %v{c4}
%v{c2}

%v{c1 * (c5 - c3)}x
= %v{c4}
%v{c2}

%v{c1 * (c5 - c3)}x *%v{c2}
= %v{c4}*%v{c2}
%v{c2}

%v{c1 * (c5 - c3)}x = %v{c4}*%v{c2}

%v{c1 * (c5 - c3)}x = %v{c4*c2}

%v{c1 * (c5 - c3)}x %v{c4*c2}
=
%v{c1 * (c5 - c3)} %v{c1 * (c5 - c3)}

%v{c4*c2}
x =
%v{c1 * (c5 - c3)}

The variable x is %v{c4*c2}/%v{c1 * (c5 - c3)}.

Type in %v{c4*c2}/%v{c1 * (c5 - c3)}

3) Assistment #58208 "58208 - Solve for x. % v{c..."

Solve for x.
%v{c1}(%v{c2} + x) = %v{c3}(%v{c4} + x)

Answer as a fraction.

Algebra:

✓ %v{(c4*c3-c2*c1)/(c1-c3)}

Hints:

Distribute

%v{c1}(%v{c2} + x) = %v{c3}(%v{c4} + x)
(%v{c2} * %v{c1}) + (x * %v{c1}) = (%v{c4} * %v{c3}) + (x * %v{c3})
%v{c2*c1} + %v{c1}x = %v{c4*c3} + %v{c3}x

Isolate the variable

%v{c2*c1} + %v{c1}x - %v{c3}x= %v{c4*c3} + %v{c3}x - %v{c3}x
%v{c2*c1} + %v{c1-c3}x = %v{c4*c3} + 0
%v{c2*c1} + %v{c1-c3}x = %v{c4*c3}
%v{c2*c1} - %v{c2*c1} + %v{c1-c3}x = %v{c4*c3} - %v{c2*c1}
0 + %v{c1-c3}x = %v{c4*c3-c2*c1}
%v{c1-c3}x = %v{c4*c3-c2*c1}

Continue to isolate the variable

%v{c1-c3}x = %v{c4*c3-c2*c1}
%v{c1-c3}x %v{c4*c3-c2*c1}
=
%v{c1-c3} %v{c1-c3}
%v{c4*c3-c2*c1}
x =
%v{c1-c3}

The variable x is %v{c4*c3-c2*c1}/%v{c1-c3}
Type in %v{c4*c3-c2*c1}/%v{c1-c3}

4) Assistment #58263 "58263 - Solve for x. x..."

Solve for x.

$$x - \%v\{c1\} = \frac{\%v\{c2\}}{\%v\{c3\}}(\%v\{c4\} - \%v\{c5\}x)$$

Answer as a fraction.

Algebra:

✓ %v{(c4*c2+c1*c3)/(c3+c5*c2)}

Hints:

Clear the fraction

$$(x - \%v\{c1\}) * \%v\{c3\} = \frac{\%v\{c2\}}{\%v\{c3\}} * \%v\{c3\}\ (\%v\{c4\} - \%v\{c5\}x)$$

$$(x - \%v\{c1\}) * \%v\{c3\} = \%v\{c2\}\ (\%v\{c4\} - \%v\{c5\}x)$$

Distribute

$$(x * \%v\{c3\} - \%v\{c1\} * \%v\{c3\}) = (\%v\{c4\} * \%v\{c2\} - \%v\{c5\}x * \%v\{c2\})$$

$$\%v\{c3\}x - \%v\{c1*c3\} = \%v\{c4*c2\} - \%v\{c5*c2\}x$$

Isolate the variable

$$\%v\{c3\}x + \%v\{c5*c2\}x - \%v\{c1*c3\} = \%v\{c4*c2\} - \%v\{c5*c2\}x + \%v\{c5*c2\}x$$

$$\%v\{c3+c5*c2\}x - \%v\{c1*c3\} + \%v\{c1*c3\} = \%v\{c4*c2\} + \%v\{c1*c3\}$$

$$\%v\{c3+c5*c2\}x = \%v\{c4*c2+c1*c3\}$$

$$\frac{\%v\{c3+c5*c2\}x}{\%v\{c3+c5*c2\}} = \frac{\%v\{c4*c2+c1*c3\}}{\%v\{c3+c5*c2\}}$$

$$x = \%v\{c4*c2+c1*c3\}/\%v\{c3+c5*c2\}$$

The variable x is %v{c4*c2+c1*c3}/%v{c3+c5*c2}

Type in %v{c4*c2+c1*c3}/%v{c3+c5*c2}

5) Assistment #57602 "57602 - Solve for x. ..."

Solve for x.

%v{c1}

%v{c2}

Answer as a fraction.

Algebra:

✓ %v{((c5*c2)-(c4*c1))}/%v{c3 * c1}

Hints:

Clear the fraction:

$\frac{\%v\{c1\}}{\%v\{c2\}} * \%v\{c2\}\ (\%v\{c3\}x + \%v\{c4\}) = \%v\{c5\} * \%v\{c2\}$

%v{c1}(%v{c3}x + %v{c4}) = %v{c5 * c2}

%v{c3 * c1}x + %v{c4 * c1} = %v{c2 * c5}

Isolate the variable:

%v{c3 * c1}x + %v{c4 * c1} - %v{c4 * c1} = %v{c2 * c5} - %v{c4 * c1}

%v{c3 * c1}x + 0 = %v{c2*c5 - c4*c1}

%v{c3 * c1}x = %v{c2*c5 - c4*c1}

$\frac{\%v\{c3 * c1\}x}{\%v\{c3 * c1\}} = \frac{\%v\{c2*c5 - c4*c1\}}{\%v\{c3 * c1\}}$

$x = \frac{\%v\{c2*c5 - c4*c1\}}{\%v\{c3 * c1\}}$

The variable x is %v{((c5*c2)-(c4*c1))}/%v{c3 * c1}.

Type in %v{((c5*c2)-(c4*c1))}/%v{c3 * c1}.

6) Assistment #57756 "57756 - 33267 - Solve for x (3.12)"

Solve for x.

$\frac{\%v\{c1\}x}{\%v\{c2\}} (\%v\{c5\} - \%v\{c3\}) = \%v\{c4\}x + \%v\{c6\}$

Answer as a fraction

Algebra:

✓ %v{(c6*c2)/((c1 * (c5 - c3))-c4*c2)}

Hints:

%v{c1}x (%v{c5} - %v{c3}) = %v{c4}x + %v{c6}
%v{c2}

%v{c1}x (%v{c5 - c3}) = %v{c4}x + %v{c6}
%v{c2}

%v{c1}x * %v{c5 - c3}
= %v{c4}x + %v{c6}
%v{c2}

%v{c1 * (c5 - c3)}x
= %v{c4}x + %v{c6}
%v{c2}

%v{c1 * (c5 - c3)}x
= %v{c4}x + %v{c6}
%v{c2}

%v{c1 * (c5 - c3)}x *%v{c2}
= (%v{c4}x + %v{c6})*%v{c2}
%v{c2}

%v{c1 * (c5 - c3)}x = %v{c4*c2}x + %v{c6*c2}

%v{c1 * (c5 - c3)}x - %v{c4*c2}x = %v{c4*c2}x + %v{c6*c2} - %v{c4*c2}x
%v{(c1 * (c5 - c3))-c4*c2}x = %v{c6*c2}

%v{(c1 * (c5 - c3))-c4*c2}x %v{c6*c2}
=
%v{(c1 * (c5 - c3))-c4*c2} %v{(c1 * (c5 - c3))-c4*c2}

%v{c6*c2}

%v{(c1 * (c5 - c3))-c4*c2}

The variable x is %v{c6*c2}/%v{(c1 * (c5 - c3))-c4*c2}.

Type in %v{c6*c2}/%v{(c1 * (c5 - c3))-c4*c2}

7) Assistment #56599 "56599 - Equation Solving"

Solve for x.
%v{a}x-%v{b}=%v{c}x+%v{d}

Answer as a fraction.

Algebra:

✓ %v{(d+b)/(a-c)}

Hints:

%v{a}x-%v{b}=%v{c}x+%v{d} Combine like terms:

%v{a}x	-	%v{b}	=	%v{c}x	+	%v{d}
%v{a}x - %v{c}x	-	%v{b} + %v{b}	=	%v{c}x - %v{c}x	+	%v{d} + %v{b}
%v{a-c}x	+	0	=	0	+	%v{d+b}
%v{a-c}x			=	%v{d+b}		

Isolate the variable:

$$\%v\{a-c\}x = \%v\{d+b\}$$

$$\frac{\%v\{a-c\}x}{\%v\{a-c\}} = \frac{\%v\{d+b\}}{\%v\{a-c\}}$$

$$x = \frac{\%v\{d+b\}}{\%v\{a-c\}}$$

8) Assistment #57750 "57750 - 33261 - Solve for x (1.9)"

Solve for x.
%v{c1}(%v{c2}x - %v{c3}x) = %v{c4}

Answer as a fraction.

Algebra:

✓ %v{c4/(c1*(c2-c3))}

Hints:

Add the similar terms inside the paranthesis.

%v{c1}(%v{c2}x - %v{c3}x) = %v{c4}

%v{c1}(%v{c2-c3}x) = %v{c4}

%v{c1}(%v{c2-c3}x) = %v{c4}

%v{c1}*%v{c2-c3}x = %v{c4}

%v{c1*(c2-c3)}x = %v{c4}

%v{c1*(c2-c3)}x = %v{c4}

%v{c1*(c2-c3)}x %v{c4}

=

%v{c1*(c2-c3)} %v{c1*(c2-c3)}

%v{c4}

x =

%v{c1*(c2-c3)}

The variable x is %v{c4}/%v{c1*(c2-c3)}.

Type in %v{c4}/%v{c1*(c2-c3)}

9) Assistment #57751 "57751 - 33261 - Solve for x (1.9)"

Solve for x.

%v{c1}(%v{c2}x - %v{c3}x) = %v{c4}x + %v{c5}

Answer as a fraction.

Algebra:

✓ %v{c5/((c1*(c2-c3))-c4)}

Hints:

Add the similar terms inside the paranthesis.

%v{c1}(%v{c2}x - %v{c3}x) = %v{c4}x + %v{c5}

%v{c1}(%v{c2-c3}x) = %v{c4}x + %v{c5}

%v{c1}(%v{c2-c3}x) = %v{c4}x + %v{c5}

%v{c1*(c2-c3)}x = %v{c4}x + %v{c5}

%v{c1*(c2-c3)}x - %v{c4}x = %v{c4}x - %v{c4}x + %v{c5}

%v{(c1*(c2-c3))-c4}x = %v{c5}

%v{(c1*(c2-c3))-c4}x = %v{c5}

%v{(c1*(c2-c3))-c4} %v{(c1*(c2-c3))-c4}

$$x = \frac{\%v\{c5\}}{\%v\{(c1*(c2-c3))-c4\}}$$

The variable x is %v{c5}/%v{(c1*(c2-c3))-c4}.

Type in %v{c5}/%v{(c1*(c2-c3))-c4}

10) Assistment #56584 "56584 - 33267 - Solve for x (3.12)"

Solve for x.

$$\frac{\%v\{c1\}x}{\%v\{c2\}} + \%v\{c3\} = \%v\{c4\}$$

Answer as a fraction.

Algebra:

✓ %v{(c4-c3)*(c2/c1)}

Hints:

Start to isolate the variable.

$$\frac{\%v\{c1\}x}{\%v\{c2\}} + \%v\{c3\} = \%v\{c4\}$$

$$\frac{\%v\{c1\}x}{\%v\{c2\}} + \%v\{c3\} - \%v\{c3\} = \%v\{c4\} - \%v\{c3\}$$

$$\frac{\%v\{c1\}x}{\%v\{c2\}} = \%v\{c4-c3\}$$

$$\frac{\%v\{c1\}x}{\%v\{c2\}} = \%v\{c4-c3\}$$

$$\frac{\%v\{c1\}x}{\%v\{c2\}} * \%v\{c2\} = \%v\{c4-c3\} * \%v\{c2\}$$

$$\%v\{c1\}x = \%v\{(c4-c3)*c2\}$$

$$\%v\{c1\}x = \%v\{(c4-c3)*c2\}$$

$$\frac{\%v\{c1\}x}{\%v\{c1\}} = \frac{\%v\{(c4-c3)*c2\}}{\%v\{c1\}}$$

$$x = \frac{\%v\{(c4-c3)*c2\}}{\%v\{c1\}}$$

The variable x is %v{(c4-c3)*c2}/%v{c1}.

Type in %v{(c4-c3)*c2}/%v{c1}

11) Assistment #60597 "60597 - Solving Eq. (#32v1)"

Solve for x.

%v{c1}(%v{c2}x - %v{c3}) + %v{c4} = %v{c5}x - %v{c6}

Answer as a fraction.

Algebra:

✓ %v{(c1*c3+c4-c6)/(c1*c2)}

Hints:

Distribute %v{c1} to the terms in the parenthesis.

%v{c1}(%v{c2}x - %v{c3}) + %v{c4} = %v{c5}x - %v{c6}

%v{c1}*%v{c2}x - %v{c1}*%v{c3} + %v{c4} = %v{c5}x - %v{c6}

%v{c1*c2}x - %v{c1*c3} + %v{c4} = %v{c5}x - %v{c6}

Combine like terms

%v{c1*c2}x - %v{c1*c3} + %v{c4} = %v{c5}x - %v{c6}

%v{c1*c2}x - %v{c1*c3+c4} = %v{c5}x - %v{c6}

Isolate the variable

%v{c1*c2}x - %v{c5}x - %v{c1*c3+c4} + %v{c1*c3+c4} = %v{c5}x - %v{c5}x - %v{c6} + %v{c1*c3+c4}

%v{c1*c2-c5}x - 0 = 0 - %v{c1*c3+c4-c6}

%v{c1*c2-c5}x = %v{c1*c3+c4-c6}

Divide both sides by the coefficient of x:

$$\frac{\%v\{c1*c2\}x}{\%v\{c1*c2\}} = \frac{\%v\{c1*c3+c4-c6\}}{\%v\{c1*c2\}}$$

$$x = \frac{\%v\{c1*c3+c4-c6\}}{\%v\{c1*c2\}}$$

The variable x is %v{c1*c3+c4-c6}/%v{c1*c2}

Type in %v{c1*c3+c4-c6}/%v{c1*c2}

12) Assistment #60577 "60577 - Solving Eq. (#32)"

Solve for x.

%v{c1}(%v{c2}x - %v{c3}) + %v{c4} = %v{c5}x + %v{c6}

Answer as a fraction.

Algebra:

✓ %v{(c1*c3+c4+c6)/(c1*c2)}

Hints:

Distribute %v{c1} to the terms in the parenthesis.

%v{c1}(%v{c2}x - %v{c3}) + %v{c4} = %v{c5}x + %v{c6}

%v{c1}*%v{c2}x - %v{c1}*%v{c3} + %v{c4} = %v{c5}x + %v{c6}

%v{c1*c2}x - %v{c1*c3} + %v{c4} = %v{c5}x + %v{c6}

Combine like terms

%v{c1*c2}x - %v{c1*c3} + %v{c4} = %v{c5}x + %v{c6}

%v{c1*c2}x - %v{c1*c3+c4} = %v{c5}x + %v{c6}

Isolate the variable

%v{c1*c2}x - %v{c5}x - %v{c1*c3+c4} + %v{c1*c3+c4} = %v{c5}x - %v{c5}x + %v{c6} + %v{c1*c3+c4}

%v{c1*c2-c5}x - 0 = 0 + %v{c1*c3+c4+c6}

%v{c1*c2-c5}x = %v{c1*c3+c4+c6}

Divide both sides by the coefficient of x:

$$\frac{\%v\{c1*c2\}x}{\%v\{c1*c2\}} = \frac{\%v\{c1*c3+c4+c6\}}{\%v\{c1*c2\}}$$

$$x = \frac{\%v\{c1*c3+c4+c6\}}{\%v\{c1*c2\}}$$

The variable x is %v{c1*c3+c4+c6}/%v{c1*c2}

Type in %v{c1*c3+c4+c6}/%v{c1*c2}

13) Assistment #57353 "57353 - Solve for x. &nbs..."

Solve for x.

$$\frac{\%v\{c1\}x}{\%v\{c2\}} - \%v\{c3\} = \%v\{c4\}$$

Algebra:

✓ %v{(c4+c3)*(c2/c1)}

Hints:

Add both sides by %v{c3}

$$\frac{\%v\{c1\}x}{\%v\{c2\}} - \%v\{c3\} + \%v\{c3\} = \%v\{c4\} + \%v\{c3\}$$

%v{c1}x

%v{c2}

Multiply both sides by %v{c2}

$$\frac{\%v\{c1\}x}{\%v\{c2\}} * \%v\{c2\} = \%v\{c4 + c3\} * \%v\{c2\}$$

%v{c1}x = %v{(c4 + c3) * c2}

Divide both sides by %v{c1}

$$\frac{\%v\{c1\}x}{\%v\{c1\}} = \frac{\%v\{(c4 + c3) * c2\}}{\%v\{c1\}}$$

x = %v{(c4 + c3) * c2}/%v{c1}

Type in %v{(c4 + c3) * c2}/%v{c1}

14) Assistment #56576 "56576 - 33261 - Solve for x (1.9)"

Solve for x.

%v{c1}(%v{c2}x + %v{c3}x) = %v{c4}

Answer as a fraction.

Algebra:

✓ %v{c4/(c1*(c2+c3))}

Hints:

Add the similar terms inside the paranthesis.

%v{c1}(%v{c2}x + %v{c3}x) = %v{c4}

%v{c1}(%v{c2+c3}x) = %v{c4}

%v{c1}(%v{c2+c3}x) = %v{c4}

%v{c1}*%v{c2+c3}x = %v{c4}

%v{c1*(c2+c3)}x = %v{c4}

%v{c1*(c2+c3)}x = %v{c4}

$$\frac{\%v\{c1*(c2+c3)\}x}{\%v\{c1*(c2+c3)\}} = \frac{\%v\{c4\}}{\%v\{c1*(c2+c3)\}}$$

$$x = \frac{\%v\{c4\}}{\%v\{c1*(c2+c3)\}}$$

The variable x is %v{c4}/%v{c1*(c2+c3)}.

Type in %v{c4}/%v{c1*(c2+c3)}

15) Assistment #56563 "56563 - 33259 - Solve for x (1.7)"

Solve for x.

%v{c1}(%v{c2}x + %v{c3}) = %v{c4}

Answer as a fraction.

Algebra:

✓ %v{(c4-c1*c3)/(c1*c2)}

Hints:

Distribute %v{c1} to the terms in the paranthesis.

%v{c1}(%v{c2}x + %v{c3}) = %v{c4}

%v{c1}*%v{c2}x + %v{c1}*%v{c3} = %v{c4}

%v{c1*c2}x + %v{c1*c3} = %v{c4}

%v{c1*c2}x + %v{c1*c3} = %v{c4}

%v{c1*c2}x + %v{c1*c3} - %v{c1*c3} = %v{c4} - %v{c1*c3}

%v{c1*c2}x = %v{c4-(c1*c3)}

%v{c1*c2}x = %v{c4-(c1*c3)}

$$\frac{\%v\{c1*c2\}x}{\%v\{c1*c2\}} = \frac{\%v\{c4-(c1*c3)\}}{\%v\{c1*c2\}}$$

$$x = \frac{\%v\{c4-(c1*c3)\}}{\%v\{c1*c2\}}$$

The variable x is %v{c4-(c1*c3)}/%v{c1*c2}.

Type in %v{c4-(c1*c3)}/%v{c1*c2}

16) Assistment #56578 "56578 - 33264 - Solve for x (1.10)"

Solve for x.
%v{c1}x(%v{c2} + %v{c3}) = %v{c4}

Answer as a fraction.

Algebra:

✓ %v{c4/(c1*(c2+c3))}

Hints:

Add the numbers inside the paranthesis.
%v{c1}x(%v{c2} + %v{c3}) = %v{c4}
%v{c1}x(%v{c2+c3}) = %v{c4}

%v{c1}x(%v{c2+c3}) = %v{c4}
%v{c1}x*%v{c2+c3} = %v{c4}
%v{c1*(c2+c3)}x = %v{c4}

%v{c1*(c2+c3)}x = %v{c4}

%v{c1*(c2+c3)}x = %v{c4}

%v{c1*(c2+c3)} = %v{c1*(c2+c3)}

x = %v{c4} / %v{c1*(c2+c3)}

The variable x is %v{c4}/%v{c1*(c2+c3)}.

Type in %v{c4}/%v{c1*(c2+c3)}

17) Assistment #56573 "56573 - 33260 - Solve for x (1.8)"

Solve for x.
%v{c1}(%v{c2}x - %v{c3}) = %v{c4}

Answer as a fraction.

Algebra:

✓ %v{(c4+(c1*c3))/(c1*c2)}

Hints:

Distribute %v{c1} to the terms in the parenthesis.

%v{c1}(%v{c2}x - %v{c3}) = %v{c4}

%v{c1}*%v{c2}x - %v{c1}*%v{c3} = %v{c4}

%v{c1*c2}x - %v{c1*c3} = %v{c4}

%v{c1*c2}x - %v{c1*c3} = %v{c4}

%v{c1*c2}x - %v{c1*c3} + %v{c1*c3} = %v{c4} + %v{c1*c3}

%v{c1*c2}x = %v{c4+(c1*c3)}

%v{c1*c2}x = %v{c4+(c1*c3)}

$$\frac{\%v\{c1*c2\}x}{\%v\{c1*c2\}} = \frac{\%v\{c4+(c1*c3)\}}{\%v\{c1*c2\}}$$

$$x = \frac{\%v\{c4+(c1*c3)\}}{\%v\{c1*c2\}}$$

The variable x is %v{c4+(c1*c3)}/%v{c1*c2}.

Type in %v{c4+(c1*c3)}/%v{c1*c2}

18) Assistment #58243 "58243 - Solve for x. &nbs..."

Solve for x.

$$\frac{\%v\{c1\}x}{\%v\{c2\}} + \%v\{c3\} = \%v\{c4\}$$

Answer as a fraction.

Algebra:

✓ %v{(c4-c3)*c2/c1}

Hints: A169

Start to isolate the variable:

%v{c1}x
+ %v{c3} - %v{c3} = %v{c4} - %v{c3}
%v{c2}

%v{c1}x
= %v{c4-c3}
%v{c2}

Continue to isolate the variable:

%v{c1}x
* %v{c2} = %v{c4-c3} * %v{c2}
%v{c2}

%v{c1}x = %v{(c4-c3)*c2}

%v{c1}x = %v{(c4-c3)*c2}
%v{c1}x %v{(c4-c3)*c2}
=
%v{c1} %v{c1}
%v{(c4-c3)*c2}
x =
%v{c1}

The variable x is %v{(c4-c3)*c2}/%v{c1}
Type in %v{(c4-c3)*c2}/%v{c1}

Algebra

Skill

Distributive Property

Class

8th Grade

Mastery Problem Set
10195

Number of Templates
10

Number to Master
3

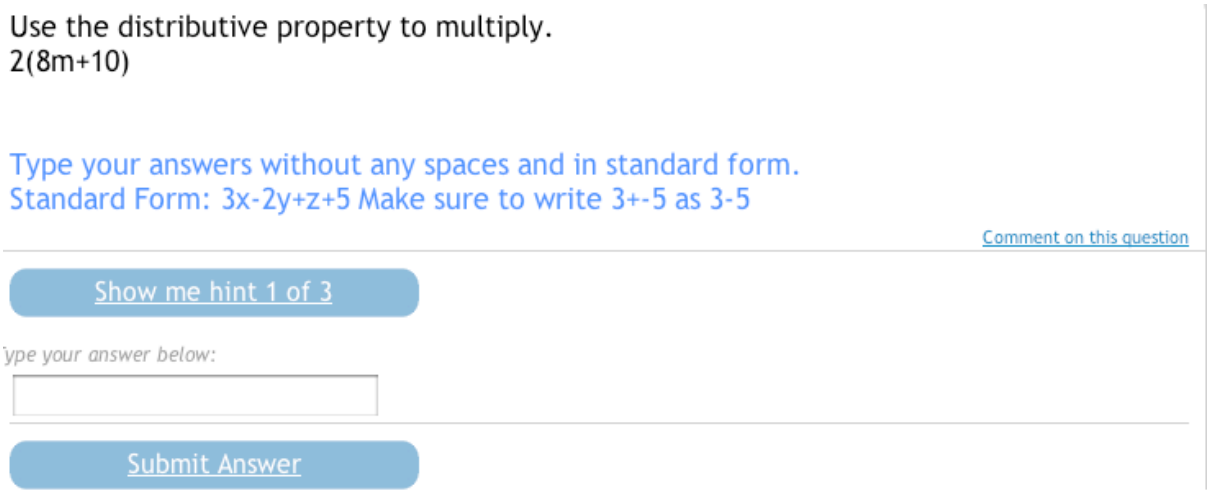
Number of Attempts
10

Templates

Two term templates:

A(Bm+C)

58206 - All terms positive



55886 - A is positive, B is positive and C is negative

58207 - A is positive, B is negative and C is positive

58209 - A is positive, B is negative and C is negative

58210 - A is negative, B is negative and C is negative
58211 - A is negative, B is negative and C is positive
58212 - A is negative, B is positive and C is positive

Three term templates
A(Bx+Cy+D)
58214 - A is negative, B is positive, C is positive and D is positive

Use the distributive property to multiply.
-7(5x+9y+5)

Type your answers without any spaces and in standard form.
Standard Form: 3x-2y+z+5. Make sure to write 3+-5 as 3-5

58215 - A is positive, B is negative, C is negative and D is negative
58216 - A is negative, B is positive, C is negative and D is positive

Assistment #83204 "83204 - Use the distribut..."

Use the distributive property to multiply.
8(6m+9)

Type your answers without any spaces and in standard form.
Standard Form: 3x-2y+z+5 Make sure to write 3+-5 as 3-5

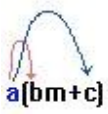
Fill in:

- ✓ 48m+72
- ✗ %v(a*b)m+9
- ✗ %v(b)m+72
- ✗ 8(6m+9)

Samuel Moniz

Hints:

With the distributive property you need to make sure that you distribute to all of the terms.



abm + ac

Applying those steps to our current problem,
8(6m+9)

8*6m+8*9

So once we multiply the terms that we can we get:
48m+72

Type
48m+72

Assistment #58206 "58206 - Use the distribut..."

Use the distributive property to multiply.
%v{a}(%v{b}m+%v{c})

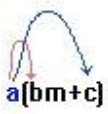
Type your answers without any spaces and in standard form.
Standard Form: 3x-2y+z+5 Make sure to write 3+-5 as 3-5

Fill in:

- ✓ %v{a*b}m+%v{a*c}
- ✗ %v(a*b)m+%v{c}
- ✗ %v(b)m+%v{a*c}
- ✗ %v{a}(%v{b}m+%v{c})

Hints:

With the distributive property you need to make sure that you distribute to all of the terms.



abm + **a**c

Applying those steps to our current problem,
%v{a}(%v{b}m+%v{c})

%v{a}*%v{b}m+%v{a}*%v{c}

So once we multiply the terms that we can we get:
%v{a*b}m+%v{a*c}

Type
%v{a*b}m+%v{a*c}

Skill	Class
Divisibility	Arithmetic

Mastery Problem Set #8741	Number of Templates 7
Number to Master 5	Number of Attempts 10