

What's Going On?

Checking In

Slight Return

Minds on

Let's Get Triangular!

Action!

Kicking it up a notch!

Consolidation

Homework!

Learning Goal - I will be able to solve multi-step equations!

Test on this unit:

Thursday, March 7th (before March Break)

Checking In

Solve for x.

$$4x + 5 = -9$$

$$\begin{array}{r} \boxed{-5} \quad -5 \end{array}$$

$$\frac{4x}{4} = \frac{-14}{4}$$

$$x = \frac{-7}{2} = -3\frac{1}{2}$$

Checking In

Solving for x means using the information that we have to figure out the value of x that makes the equation true:

$$3x + 9 = 0$$

1. Figure out what has happened to x , in what order. (Multiplying and dividing, THEN adding and subtracting)

$$\begin{array}{r} 3x + 9 = 0 \\ -9 \quad -9 \end{array}$$

2. Undo the things that have happened to x , in reverse order.

Undo adding/
subtracting...

$$\begin{array}{r} 3x = -9 \\ \underline{3x} = \underline{-9} \\ 3 \quad 3 \end{array}$$

Then undo
multiplying/dividing.

$$x = -3$$

Checking In

Check for:	What to do:	Example:
<p>4</p> <p>Something added to or subtracted from the variable term</p>	<p>Bring the constant to the right side: Undo (+) by subtracting from both sides, undo (-) by adding to both sides.</p>	$2a - 4 = 6$ $2a = 6 + 4$ $2a = 10$
<p>5</p> <p>Coefficient on the variable (multiplying it)</p>	<p>Divide both sides by the coefficient.</p>	$\frac{2a}{2} = \frac{10}{2}$ $a = 5$

Checking In

$$3g + 6 = 27$$

Handwritten work in red ink shows a red box around the $3g + 6$ term, with a red 46 written inside the box. To the right of the box is a red -6 .

$$\frac{3g}{3} = \frac{21}{3}$$

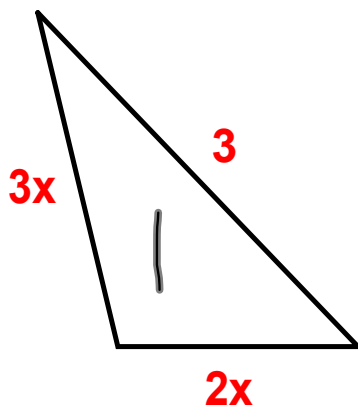
Handwritten work in red ink shows the equation $3g = 21$ with a horizontal line under the $3g$ and the 21 . Below this, the 3 is written, and the 3 in the denominator of the fraction is also written.

$$g = 7$$

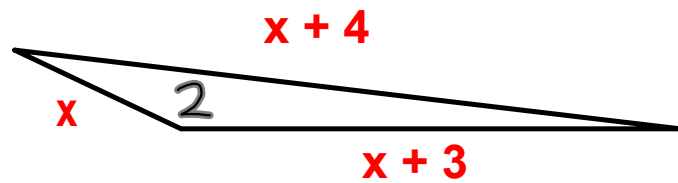
Handwritten work in red ink shows the final solution $g = 7$.

Minds on

1. Model the situation



$$P_1 = \underline{3x} + 3 + \underline{2x}$$
$$= 5x + 3$$



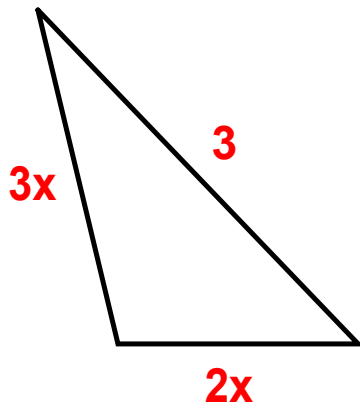
$$P_2 = x + x+4 + x+3$$
$$= 3x + 7$$

$$P_1 = P_2$$

$$5x + 3 = 3x + 7$$

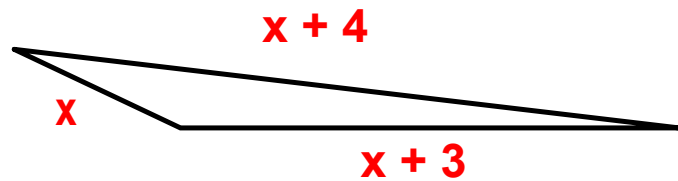
Minds on

2. Solve for x .



Perimeter

$$2x + 3 + 3x$$



Perimeter

$$x + (x + 3) + (x + 4)$$

$$5x + 3 = 3x + 7$$

$$5x + 3 = \cancel{3x} + 7$$

$-3x$

$$2x + \cancel{3} = 7$$

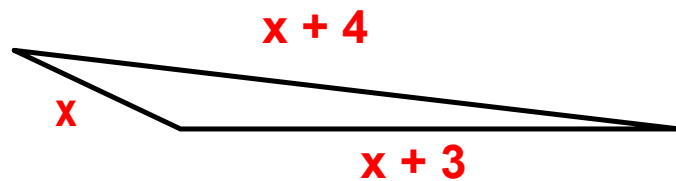
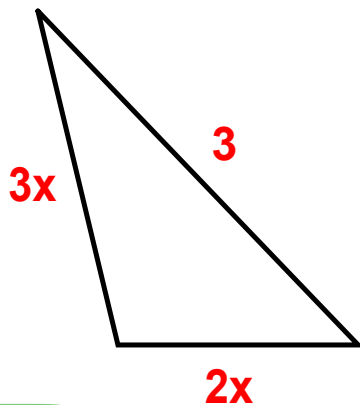
-3

$$2x = 4$$

$$x = 2$$

Minds on

3. What is the perimeter?



$$P_1 = 3x + 2x + 3$$

$$P_1 = 5x + 3$$

$$P_2 = x + 4 + x + 3 + x$$

$$P_2 = 3x + 7$$

$$5x + 3 = 3x + 7$$

$$x = 2$$

$$P = 5(2) + 3$$

$$= 10 + 3$$

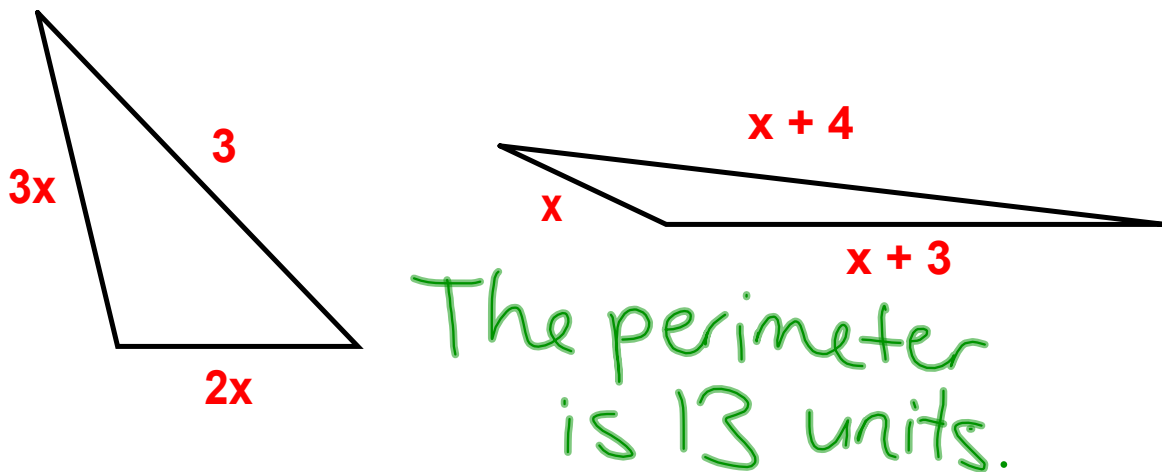
$$= 13$$

Minds on

Let's Get Triangular

These two triangles have the same perimeter.

1. Model this situation.
2. Solve for x .
3. What is the perimeter?



Action!

Kicking it up a notch!

Solve.

$$2x + 3 = x + 5$$

$$\begin{array}{r} 2x + 3 = x + 5 \\ -x \qquad -x \end{array}$$

$$1x + 3 = 0 + 5$$

$$\begin{array}{r} x + 3 = 5 \\ +3 \qquad -3 \end{array}$$

$$x = 2$$

Action!

Kicking it up a notch!

Solve.

$$7x + 3 = 5x - 6$$

$$\begin{array}{r} 7x + 3 = 5x - 6 \\ -5x \quad -5x \end{array}$$

$$\begin{array}{r} 2x + 3 = -6 \\ -3 \quad -3 \end{array}$$

$$2x = -6 - 3$$

$$\cancel{2x} = \frac{-9}{2}$$

$$\begin{array}{l} x = \frac{-9}{2} \\ = -4.5 \end{array}$$

Action!

Kicking it up a notch!

Solve.

$$\underline{5(2x - 1)} = 3(3x + 5)$$

$$10x - 5 = 9x + 15$$

$$\begin{array}{r} -9x \\ 1x \end{array} \quad \begin{array}{r} \cancel{-5} \\ +5 \end{array} = \begin{array}{r} \cancel{9x} \\ +15 \end{array} \quad \begin{array}{r} 15 \\ +5 \end{array}$$

$$x = 20$$

Action!

Kicking it up a notch!

Solve.

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

$$2x - 6 = -3x - 15 - 6$$

$$2x - 6 = -3x - 21$$

+3x


$$5x - 6 = -21$$

+6

$$5x = -15$$

$$x = -3$$

Consolidation

Check for:	What to do:	Example:
<p style="color: red; font-size: 2em; text-align: center;">2</p> <p>Brackets</p>	<p>Expand using the distributive property (p. 162 in your textbook).</p>	 $4(3a - 1) = 2(3 + 5a)$ $12a - 4 = 6 + 10a$
<p style="color: red; font-size: 2em; text-align: center;">3</p> <p>Variable terms on both sides</p>	<p>Bring all variables to the left: Undo (+) variable on the right by subtracting it from both sides. Undo (-) variable on the right by adding it to both sides.</p>	$12a - 4 = 6 + 10a$ $\color{red}{-10a} \qquad \color{red}{-10a}$ $2a - 4 = 6$

Consolidation

Exit card: Hand in these 2 questions before you leave.

$$a) 3x + 10 = 22$$

$$b) 3(x - 3) = -3(x - 4) - 6$$

Consolidation

Homework!!!

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