

Get out your homework and have it ready to check. Test over Unit 3 on Monday!

Classwork - Target Check and Test Review (Skills)

Solve and graph the following inequalities. Remember, when multiplying or dividing by a negative number to must flip the inequality symbol. SHOW WORK

A) $3x - 9 > 21$

$$\begin{array}{r} +9 \quad +9 \\ \hline 3x > 30 \\ \frac{3}{3} \quad \frac{3}{3} \\ \hline x > 10 \end{array}$$



B) $-\frac{1}{2}x + 7 \leq 17$

$$\begin{array}{r} -7 \quad -7 \\ \hline 2 \cdot \frac{-1x}{2} \leq 10 - 2 \\ \hline -1x \leq 20 \\ \text{Flip *} \quad \frac{-1}{-1} \quad \frac{20}{-1} \\ \hline x \geq -20 \end{array}$$



C) $8.3x + 14 \geq 88.7$

$$\begin{array}{r} -14 \quad -14 \\ \hline 8.3x \geq 74.7 \\ \frac{8.3}{8.3} \quad \frac{74.7}{8.3} \\ \hline x \geq 9 \end{array}$$



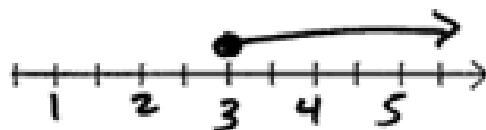
$$D) -6x + 36 \leq 18$$

$$\frac{-36 \quad -36}{-6x \leq -18}$$

$$\frac{-6}{-6} \leq \frac{-18}{-6}$$

Flip #

$$x \geq 3$$



$$E) 56 < 10x - 4$$

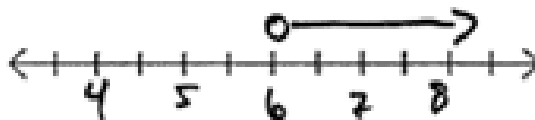
$$\frac{+4 \quad +4}{60 < 10x}$$

$$\frac{60}{10} < \frac{10x}{10}$$

$$6 < x$$

OR

$$x > 6$$

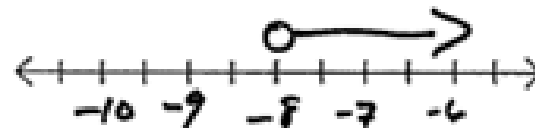


$$F) \frac{5}{4}x - 13 > -19$$

$$\frac{+13 \quad +13}{4 \cdot \frac{3x}{4} > -6 \cdot 4}$$

$$\frac{3x}{3} > \frac{-24}{3}$$

$$x > -8$$



2) Write an inequality to represent the situation. Then solve and graph the inequality. Interpret your solution.

A) Katie is starting a babysitting business. She spent \$26 to make signs to advertise. She charges an initial fee of \$5 and then \$3 for each hour of service. How many hours will she need to babysit to make a profit?

Define variable: $h = \#$ of hours



Interpretation: Katie has to work more than 7 hours.

$$\begin{array}{r} \text{Inequality} \\ 3h + 5 > 26 \\ -5 \quad -5 \\ \hline 3h > 21 \\ \frac{3h}{3} > \frac{21}{3} \\ h > 7 \end{array}$$

Solution: $h > 7$

B) A rental car company charges \$45 plus \$0.20 per mile to rent a car. Mr. Willimann does not want to spend more than \$100 for his rental car. How many miles can Mr. Willimann drive in the rental car?

Define variable: $m = \#$ of miles



Interpretation: Mr. Willimann can drive up to 275 miles.

$$\begin{array}{r} \text{Inequality} \\ 0.2m + 45 \leq 100 \\ -45 \quad -45 \\ \hline 0.2m \leq 55 \\ \frac{0.2m}{0.2} \leq \frac{55}{0.2} \\ m \leq 275 \end{array}$$

Solution: $m \leq 275$

Combining Like Terms

Simplify the following expressions by combining like terms. Circle/Box like terms – INCLUDING THE SIGN IN FRONT – then simplify.

There should not be any like terms in your final answer.

Example

$$4a - 5 + 3a$$


Simplified Expression

$$7a - 5$$

A) $5x + 12 - 3x$

B) $3 + 4x - 6$

C) $-2x + 8 + 10x - 3$



D) $3a - 6b - 7 + a$

E) $4n + 5 - 8n + 6$

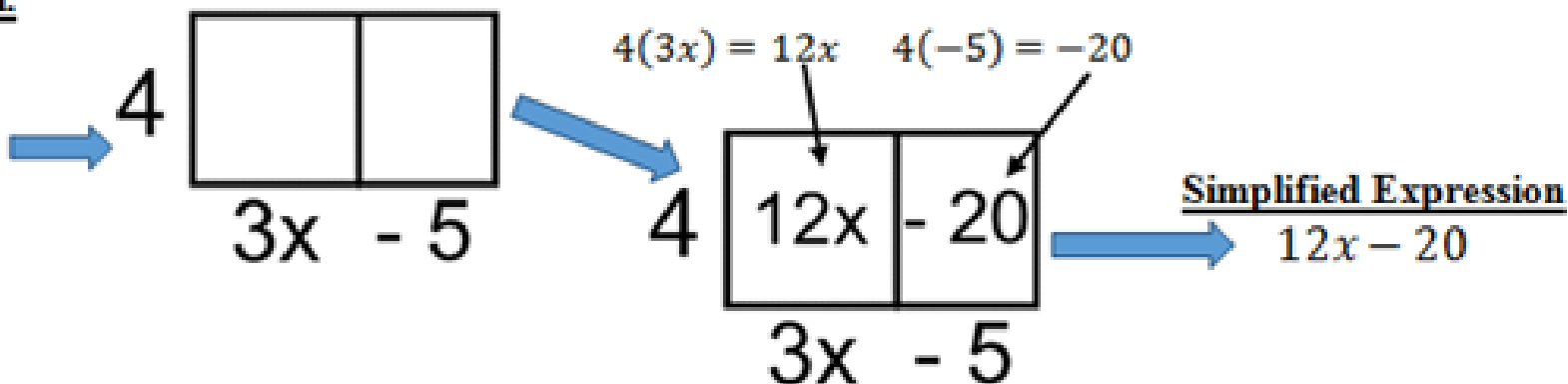
F) $-x + 8y - 6x + 1$

The Distributive Property

Use the distributive property on the expressions below. Use an area model for the factored part of the expression to find the expanded form of the expression. Rewrite your simplified expression outside your area model.

Example

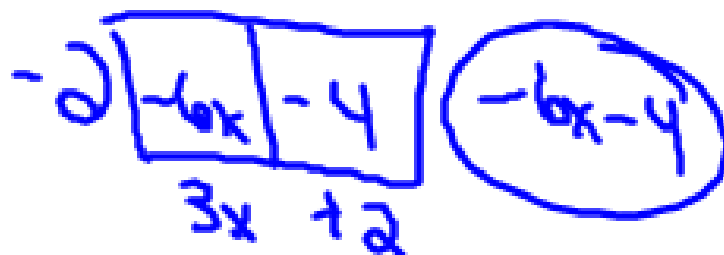
$4(3x - 5)$



A) $4(x + 2)$

B) $-2(3x + 2)$

C) $4(-3x - 1)$



D) $10(-5x + 3)$

E) $\frac{1}{4}(4x - 8)$

F) $-7(-x - 3)$

The following problems involve combining like terms and distributive property. After using the distributive property, identify and simplify like terms.

G) $4(x + 2) + 7$

H) $-2(3x - 6) + 7x$

I) $-3(5x + 3) - 5x$

$$-2 \begin{array}{|c|c|} \hline -6x & +12 \\ \hline \end{array}$$

$$3x \quad -6$$

$$-6x + 12 + 7x$$

$$1x + 12$$

J) $8 - 2(2x - 4)$

K) $4x + 3(-5x + 2) - 9$

L) $7 - 6(3x - 5) + 12x$

$$-2 \begin{array}{|c|c|} \hline & \\ \hline \end{array}$$

$$2x \quad -4$$

Simplify each expression to decide whether the 2 expressions are equivalent or not. Show work to prove your answer. Equivalent expressions have the same simplified expression after you combine like terms.

A)	<u>Expression #1</u>		<u>Expression #2</u>
	$\frac{1}{5}(10x - 30)$	(Circle Your Answer)	$3 + 2x - 9$

Equivalent

Not Equivalent

B)	<u>Expression #1</u>		<u>Expression #2</u>
	$-2(3x - 4)$	(Circle Your Answer)	$10x + 3 - 4x - 11$

Equivalent

Not Equivalent

C)	<u>Expression #1</u>		<u>Expression #2</u>
	$-8n + 5$	(Circle Your Answer)	$4n - 7n$

Equivalent

Not Equivalent

Example

$$3(x + 2) = 15$$

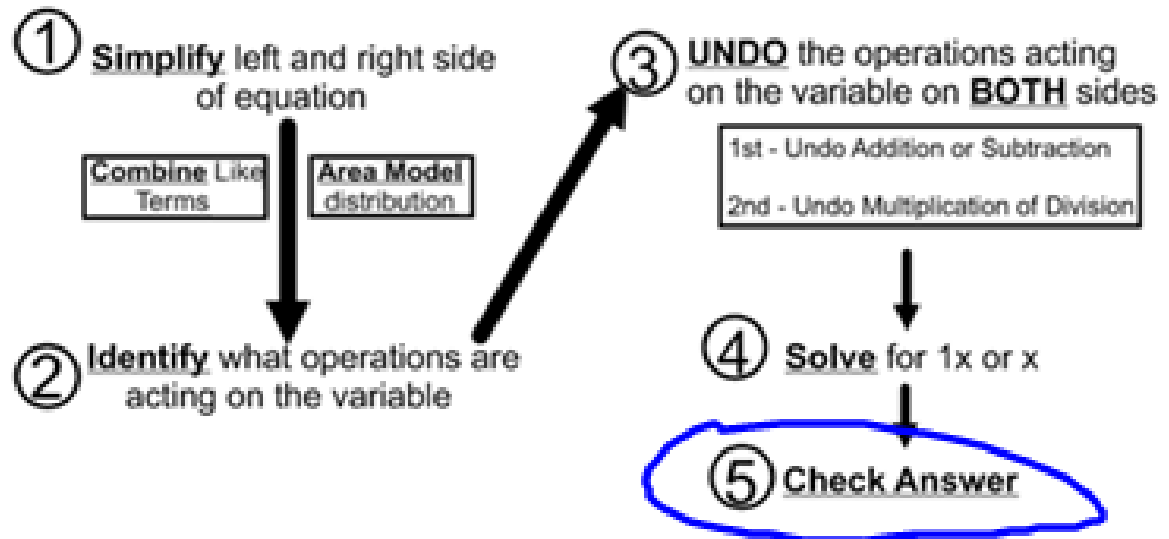
3	3x	+6
	x	+2

$3x + 6 = 15$

$\frac{3x}{3} = \frac{15}{3}$

$1x = 5$

Solving Equations



Solve the following equations. Simplify the equations **BEFORE** solving if needed. Make sure to show inverse operations on **BOTH** sides and **WORK DOWN**. **SHOW ALL WORK**.

A) $3n + 5 = 26$

B) $5x - 8 = -23$

C) $\frac{n}{2} + 3 = -4$

$$D) \quad 42 = 6k - 12$$

$$E) \quad \frac{x}{5} - 9 = -2$$

$$F) \quad \frac{x}{3} - 7 = 8$$

$$G) \quad -90 = -12b + 30$$

$$H) \quad \frac{1}{4}x + 8 = 2$$

$$I) \quad 57 = 9h - 6$$

$$J) 72 = 4(2x + 6)$$

$$K) -3(2x + 1) = 63$$

$$L) 52 = 4(-2x + 5)$$

$$4 \overline{) \begin{array}{|l} 8x & +24 \\ \hline 2x & +6 \end{array}}$$

$$72 = 8x + 24$$

Simplify before you solve!

Solving Inequalities

Solve and graph the following inequalities. Remember, when multiplying or dividing by a negative number to must flip the inequality symbol. SHOW WORK

A) $4x + 10 < 30$

B) $\frac{x}{3} - 4 \geq -8$

C) $-3x - 8 > -29$



D) $5x - 12 \leq 13$

E) $\frac{1}{3}x - 4 > -8$

F) $38 \leq 6x - 10$



$$\text{G) } -3.5x - 7 < 49$$



$$\text{H) } \frac{3}{4}x + 10 \geq 1$$

