

Have your homework out ready to check. Grab a half sheet from the front table and Warm Up. TEST MONDAY!

### Classwork - Test Review (Word Problems)

1) Completely simplify each expression.

A)  $4x - 6 + 7x - 4$

$$11x - 10$$

B)  $-6x + 5 + 9x - 2$

$$3x + 3$$

C)  $3(x + 5)$

$$3 \begin{array}{|l|l|} \hline 3x & +15 \\ \hline \end{array}$$

$x \quad 5$

$$3x + 15$$

D)  $7(2n - 3)$

$$14n - 21$$

E)  $-5(4j - 2) + 9j$

$$-5 \begin{array}{|l|l|} \hline -20j & +10 \\ \hline \end{array}$$

$4j - 2$

$$-20j + 10 + 9j$$

$$-11j + 10$$

F)  $-5(2n + 3) + 7n - 4$

$$-5 \begin{array}{|l|l|} \hline -10n & -15 \\ \hline \end{array}$$

$2n + 3$

$$-10n - 15 + 7n - 4$$

$$-3n - 19$$

2) Completely factor each expression by creating an area model. Rewrite the factored form of the expression.

A)  $6x + 14$

2	6x	+14
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$3x + 7$

$2(3x + 7)$

B)  $5n - 35$

5	5n	-35
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$1n - 7$

$5(n - 7)$

C)  $-4n + 18$

2	-4n	+18
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$-2n + 9$

$2(-2n + 9)$   
OR  
 $-2(2n - 9)$

D)  $8x - 20$

4	8x	-20
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$2x - 5$

$4(2x - 5)$

### 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.

A)  $(5x) + 12(-3x)$   
 $2x + 12$

B)  $(3) + 4x(-6)$   
 $4x - 3$

Example  
 $4a - 5 + 3a$   
 $(+4a) - 5 + (3a)$   
 Simplified Expression  $\rightarrow 7a - 5$   
 C)  $(-2) + 8 + (10x) - 3$   
 $8x + 5$

D)  $(3a) - 6b - 7(+a)$   
 $4a - 6b - 7$

E)  $(4n) + 5 - 8n + 6$   
 $-4n + 11$

F)  $(-x) + 8y - 6x + 1$   
 $-7x + 8y + 1$

A)  $4(x + 2)$   
 $4(4x + 8)$   
 $x + 2$   
 $4x + 8$

B)  $-2(3x + 2)$   
 $-2(-6x - 4)$   
 $3x + 2$   
 $-6x - 4$

C)  $4(-3x - 1)$   
 $4(-12x - 4)$   
 $-3x - 1$   
 $-12x - 4$

D)  $10(-5x + 3)$   
 $10(-50x + 30)$   
 $-5x + 3$   
 $-50x + 30$

E)  $\frac{1}{4}(4x - 8)$   
 $\frac{1}{4}(1x - 2)$   
 $4x - 8$   
 $1x - 2$

F)  $-7(-x - 3)$   
 $-7(7x + 21)$   
 $-x - 3$   
 $7x + 21$

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

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

$$\begin{array}{l} 4 \overline{4x + 8} \\ x + 2 \\ 4x + \cancel{8} + 7 \\ 4x + 15 \end{array}$$

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

$$\begin{array}{l} -2 \overline{-6x + 12} \\ 3x - 6 \\ (-6x) + 12 + 7x \\ 1x + 12 \end{array}$$

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

$$\begin{array}{l} -3 \overline{-15x - 9} \\ 5x + 3 \\ (-15x) - 9 - 5x \\ -20x - 9 \end{array}$$

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

$$\begin{array}{l} -2 \overline{-4x + 8} \\ 2x - 4 \\ \cancel{8} - 4x + \cancel{8} \\ -4x + 16 \end{array}$$

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

$$\begin{array}{l} 3 \overline{-15x + 6} \\ -5x + 2 \\ 4x - 15x + 6 - 9 \\ -11x - 3 \end{array}$$

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

$$\begin{array}{l} -6 \overline{-18x + 30} \\ 3x - 5 \\ \cancel{7} - 18x + 30 + 12x \\ -6x + 37 \end{array}$$

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) Expression #1  
 $\frac{1}{5}(10x - 30)$   
 $\frac{1}{5} \boxed{2x - 6}$   $2x - 6$   
 $\frac{10x - 30}{5}$

(Circle Your Answer)

Equivalent  
 Not Equivalent

Expression #2  
 $\textcircled{3} + 2x \textcircled{-9}$   
 $2x - 6$

B) Expression #1  
 $-2(3x - 4)$   
 $-2 \boxed{-6x + 8}$   
 $3x - 4$   
 $-6x + 8$

(Circle Your Answer)

Equivalent  
Not Equivalent

Expression #2  
 $\textcircled{10x} + 3 \textcircled{-4x} - 11$   
 $6x - 8$

C) Expression #1  
 $-8n + 5$   
 Can't simplify

(Circle Your Answer)

Equivalent  
Not Equivalent

Expression #2  
 $\textcircled{4n} - 7n$   
 $-3n$

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)  $3n + 5 = 26$

$$\begin{array}{r} -5 \quad -5 \\ \hline 3n = 21 \\ \frac{3}{3} \quad \frac{3}{3} \\ \hline n = 7 \end{array}$$

B)  $5x - 8 = -23$

$$\begin{array}{r} +8 \quad +8 \\ \hline 5x = -15 \\ \frac{5}{5} \quad \frac{5}{5} \\ \hline x = -3 \end{array}$$

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

$$\begin{array}{r} -3 \quad -3 \\ \hline 2 \cdot \frac{n}{2} = -7 \cdot 2 \\ \hline n = -14 \end{array}$$

D)  $42 = 6k - 12$

$$\begin{array}{r} +12 \quad +12 \\ \hline 54 = 6k \\ \frac{54}{6} = \frac{6k}{6} \\ \hline 9 = k \end{array}$$

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

$$\begin{array}{r} +9 \quad +9 \\ \hline 5 \cdot \frac{x}{5} = 7 \cdot 5 \\ \hline x = 35 \end{array}$$

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

$$\begin{array}{r} +7 \quad +7 \\ \hline 3 \cdot \frac{x}{3} = 15 \cdot 3 \\ \hline x = 45 \end{array}$$

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

$$\begin{array}{r} -30 \quad -30 \\ \hline -120 = -12b \\ \frac{-120}{-12} = \frac{-12b}{-12} \\ \hline 10 = b \end{array}$$

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

$$\begin{array}{r} -8 \quad -8 \\ \hline 4 \cdot \frac{1}{4}x = -6 \cdot 4 \\ \hline 1x = -24 \\ \hline x = -24 \end{array}$$

I)  $57 = 9h - 6$

$$\begin{array}{r} +6 \quad +6 \\ \hline 63 = 9h \\ \frac{63}{9} = \frac{9h}{9} \\ \hline 7 = h \end{array}$$

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

$$4 \overline{\begin{array}{r} 8x + 24 \\ 2x + 6 \end{array}}$$

$$\begin{array}{r} 72 = 8x + 24 \\ -24 \quad -24 \\ \hline 48 = 8x \\ \frac{48}{8} = \frac{8x}{8} \\ 6 = x \end{array}$$

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

$$-3 \overline{\begin{array}{r} -6x - 3 \\ 2x + 1 \end{array}}$$

$$\begin{array}{r} -6x - 3 = 63 \\ +3 \quad +3 \\ \hline -6x = 66 \\ \frac{-6x}{-6} = \frac{66}{-6} \\ x = -11 \end{array}$$

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

$$4 \overline{\begin{array}{r} -8x + 20 \\ -2x + 5 \end{array}}$$

$$\begin{array}{r} 52 = -8x + 20 \\ -20 \quad -20 \\ \hline 32 = -8x \\ \frac{32}{-8} = \frac{-8x}{-8} \\ -4 = x \end{array}$$

### 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

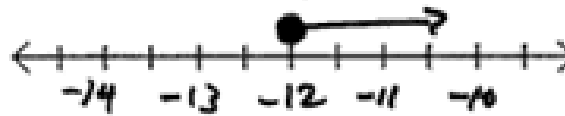
$$A) 4x + 10 < 30$$

$$\begin{array}{r} 4x + 10 < 30 \\ -10 \quad -10 \\ \hline 4x < 20 \\ \frac{4x}{4} < \frac{20}{4} \\ x < 5 \end{array}$$



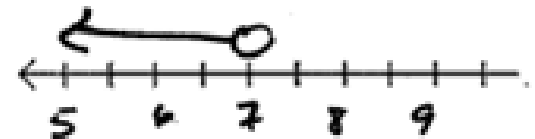
$$B) \frac{x}{3} - 4 \geq -8$$

$$\begin{array}{r} \frac{x}{3} - 4 \geq -8 \\ +4 \quad +4 \\ \hline 3 \cdot \frac{x}{3} \geq -4 \cdot 3 \\ x \geq -12 \end{array}$$



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

$$\begin{array}{r} -3x - 8 > -29 \\ +8 \quad +8 \\ \hline -3x > -21 \\ \text{Flip } \frac{-3x}{-3} > \frac{-21}{-3} \\ x < 7 \end{array}$$



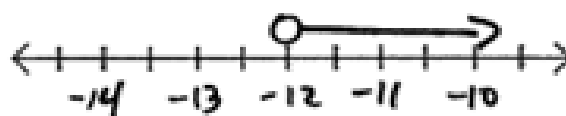
$$\begin{aligned} \text{D) } 5x - 12 &\leq 13 \\ +12 \quad +12 \end{aligned}$$

$$\begin{aligned} \hline \frac{5x}{5} &\leq \frac{25}{5} \\ x &\leq 5 \end{aligned}$$



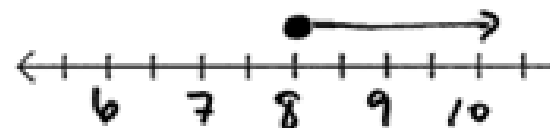
$$\begin{aligned} \text{E) } \frac{1}{3}x - 4 &> -8 \\ +4 \quad +4 \end{aligned}$$

$$\begin{aligned} 3 \cdot \frac{1x}{3} &> -4 \cdot 3 \\ 1x &> -12 \\ x &> -12 \end{aligned}$$



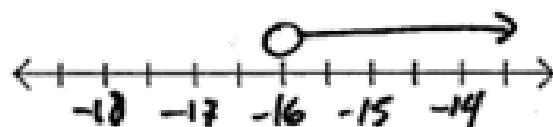
$$\begin{aligned} \text{F) } 38 &\leq 6x - 10 \\ +10 \quad +10 \end{aligned}$$

$$\begin{aligned} \hline \frac{48}{6} &\leq \frac{6x}{6} \\ 8 &\leq x \text{ OR } x \geq 8 \end{aligned}$$



$$\begin{aligned} \text{G) } -3.5x - 7 &< 49 \\ +7 \quad +7 \end{aligned}$$

$$\begin{aligned} \hline \frac{-3.5x}{-3.5} &< \frac{56}{-3.5} \\ x &> -16 \end{aligned}$$



$$\begin{aligned} \text{H) } \frac{3}{4}x + 10 &\geq 1 \\ -10 \quad -10 \end{aligned}$$

$$\begin{aligned} 4 \cdot \frac{3x}{4} &\geq -9 \cdot 4 \\ \frac{3x}{3} &\geq -\frac{36}{3} \\ x &\geq -12 \end{aligned}$$

