

Name: Key
 Math 433- Mrs. Pulford

Date: 9/4/18
 HW 0

Mixed Review

1. Simplify:

$\begin{aligned} &(-2)^4(-y)^3 \\ &(16)(-y^3) \\ &\boxed{-16y^3} \end{aligned}$	$\begin{aligned} &3x - 2(5 - 2x) \\ &3x - 10 + 4x \\ &\boxed{7x - 10} \end{aligned}$	$\begin{aligned} &\frac{ (-6)^2 - 3(-4) }{-8 + 2} \\ &\frac{ 36 + 12 }{-6} \\ &\frac{ 48 }{-6} \\ & -8 = \boxed{8} \end{aligned}$
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2. Solve:

$\begin{aligned} &6(5x - 4) = 7(4x + 5) - 19 \\ &30x - 24 = 28x + 35 - 19 \\ &30x - 24 = 28x + 16 \\ &2x = 40 \\ &\boxed{x = 20} \end{aligned}$	$\begin{aligned} &5x - 2(3x + 6) = 2 - x \\ &5x - 6x - 12 = 2 - x \\ &-x - 12 = 2 - x \\ &-12 \neq 2 \\ &\boxed{\emptyset} \end{aligned}$	$\begin{aligned} &3(x - 1) = 3x - 3 \\ &3x - 3 = 3x - 3 \\ &-3 = -3 \\ &\boxed{\mathbb{R}} \end{aligned}$
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3. Determine whether each statement is true or false:

If $a > b$, then $ac > bc$. F (if c is neg)

If $a < b$, then $a - c < b - c$. T

If $a < b$, then $a^2 < b^2$. F (ex: $-2 < 1 \rightarrow (-2)^2 < 1^2$
 $4 < 1$)

4. Solve $A = 2\pi r(r + h)$ for h .

$$\begin{aligned} A &= 2\pi r^2 + 2\pi r h \\ A - 2\pi r^2 &= 2\pi r h \\ \boxed{\frac{A - 2\pi r^2}{2\pi r} = h} \end{aligned}$$

or

$$\begin{aligned} \frac{A}{2\pi r} &= r + h \\ \boxed{\frac{A}{2\pi r} - r = h} \end{aligned}$$

5. The school book store sold 8 more pencils than pens one day. The cost of a pencil is \$0.05, and the cost of a pen is \$0.20. If the day's sales of pens and pencils totaled \$8.90, how many pencils were sold.

Let x be # of pens sold
 $x+8$ be # of pencils sold

$$.05(x+8) + .2(x) = 8.90$$

$$.05x + .4 + .2x = 8.9$$

$$.25x + .4 = 8.9$$

$$.25x = 8.5$$

$$x = 34$$

34 pens, 42 pencils

6. Evaluate each expression:

$$x(x+1)(4-x) \text{ if } x=3$$

$$3(3+1)(4-3)$$

$$3(4)(1)$$

$$12$$

$$x(y-1)^2 \text{ if } x = \frac{1}{5} \text{ and } y = -4$$

$$\frac{1}{5}(-4-1)^2$$

$$\frac{1}{5}(-5)^2$$

$$\frac{1}{5}(25) = 5$$

7. Joe's cell phone costs him \$21 per month plus \$3 for every 1GB of data downloaded. What is the limit to the number of GBs he can download to stay within his monthly budget of \$30?

Let x be # of GB's data downloaded

$$21 + 3x = 30$$

$$3x = 9$$

$$x = 3$$

Joe can download
3GB

8. Joel is looking at costs for using a gym. He could pay \$50 per month for unlimited use or he could pay \$12 per month plus \$4 per visit. How many visits would he have to make each month to make the \$50 per month unlimited use option the cheapest one?

Let x be the # of visits to the gym

$$50 = 12 + 4x$$

$$38 = 4x$$

$$9.5 = x$$

Joel would need
to visit the gym
at least 10
times

9. A bus is to be chartered for the senior class trip. The basic fare is \$9.50 per passenger. If more than 20 people go, everyone's fare is reduced by \$0.30 for each passenger over 20. At least how many people must go to make the fare less than \$7.50 per passenger?

Let x be the # of students going on the senior trip where $x > 20$

$$9.50 - .3(x - 20) = 7.5$$

$$9.5 - .3x + 6 = 7.5$$

$$15.5 - .3x = 7.5$$

$$8 = .3x$$

$x = 26.6\bar{6}$
 At least 27 students must go on the class trip.

10. A gardener is planting two types of trees:

Type A is three feet tall and grows at a rate of 15 inches per year.

Type B is four feet tall and grows at a rate of 10 inches per year.

After how many full months will Tree A be taller than Tree B?

Let x be # of years

$$3\text{ft} \rightarrow 36\text{in}$$

$$4\text{ft} \rightarrow 48\text{in}$$

$$36 + 15x = 48 + 10x$$

$$5x = 12$$

$$x = 2.4\text{ years}$$

2.4 years

↓

28.8 months

29 full months are required for tree A to be taller than tree B.

11. Solve:

$$\left[\frac{x+3}{5} - \frac{3x}{10} = 7 \right]$$

$$2(x+3) - 3x = 70$$

$$2x+6 - 3x = 70$$

$$-x+6 = 70$$

$$-x = 64$$

$$x = -64$$

