Bellwork: Algebra 1

1. Write down your homework for the night.
2. Take out your homework from yesterday and be ready to check.
3. You need your algebra nation book and a calculator.
3. On your bellwork page for TUESDAY, answer the following:

$$\frac{2x+3}{4} = \frac{6x+10}{12}$$

$12(2x+3) = 4(6x+10)$

$24x+36 = 24x+40$

$-24x \quad -24x$

$36 = 40$

$\emptyset$

$18 = 6(2x - 8)$

$18 = 12x - 48$ Distributive

$\frac{66}{12} = \frac{12x}{12}$ Addition Prop of Equality

$5.5 = x$ Division

$5.5 = x$

$8 + 3b = -13$

$\frac{3b}{3} = \frac{-21}{3}$ Subtract. Prop of Equality

Division

$b = -7$

$b = -7$

$\frac{x-3}{4} = 12$

$x - 3 = 48$ Multiplication Prop. of Equality

$x = 51$ Addition Prop. of Equality

$x = 51$

$14 + 3n = 8n - 3(n - 4)$

$n = 1$

$14+3n = 8n - 3n + 12$ Distributive

$14+3n = 5n + 12$

$14-12 = 5n - 3n$ Add + Sub Prop. of Equality

$2 = 2n$

$1 = n$ Division

$22x + 11 = 4x - 7$

$x = -1$

$18x + 11 = -7$ Sub Prop of Equality

$18x = -18$ Sub. Prop. of Equality

$x = -1$ Division

2. During summer vacation, you charge people $8 per hour for swimming lessons and a $20 registration fee. If you make $52 one day, how many hours did you spend teaching lessons?

$52 = 8x + 20$

$32 = 8x$

$4 = x$

4 hours of lessons.

3. Lacoste Middle School surveyed its student population about their favorite mobile apps. The 786 students who listed Facebook as their favorite app represented 32 fewer students than two times the number of students who listed Instagram as their favorite app. How many students listed Instagram as their favorite app?

$786 = 2x - 32$

$818 = 2x$

$409 = x$

409 students

4. The 2015 senior class from Puma High School raised funds for an end of the year party at Club Sizzle. It costs $4,000 to rent out Club Sizzle plus $20 per student for food and drinks. If the senior class raised $11,000, how many students can attend the end of year party?

$4000 + 20x = 11000$

$20x = 7000$

$x = 350$

350 STUDENTS

5. Alex sells cars at Keith Palmer Ford. He earns $400 a week plus $150 per car he sells. If he earned $1450 last week, how many cars did he sell?

$1450 = 400 + 150x$

$1050 = 150x$

$7 = x$

7 CARS

Section 2 – Topic 4
Solving Equations Using the Zero Product Property

If someone told you that the product of two numbers is 10, what could you say about the two numbers?

They are factors of 10.
1, 2, 5, 10

If someone told you that the product of two numbers is zero, what could you say about the two numbers?

At least one number would be zero.

This is the ***zero product property***.

- If $ab = 0$, then either $a = 0$ or $b = 0$.

Describe how to use the zero product property to solve the equation $(x - 3)(x + 9) = 0$. Then, identify the solutions.

$x - 3 = 0$ or $x + 9 = 0$

$+3 \quad +3$ $\quad -9 \quad -9$

$x = 3$ $\quad x = -9$

$(3 - 3)(3 + 9) = 0$ $\quad (-9 - 3)(-9 + 9) = 0$

$0 \cdot 12 = 0$ ✓ $\quad -12 \cdot 0 = 0$ ✓

$x = \{-9, 3\}$

Let's Practice!

1. Identify the solution(s) to $2x(x+4)(x+5)=0$.

$\frac{2x}{2}=\frac{0}{2}$ $\quad x+4=0$ $\quad x+5=0$

$-4\ -4$ $\quad -5\ -5$

$x=0$ $\quad x=-4$ $\quad x=-5$

$x=\{-5,-4,0\}$

2. Identify the solution(s) to $(2x-5)(x+11)=0$.

$2x-5=0$ $\quad x+11=0$

$+5\ +5$ $\quad -11\ -11$

$\frac{2x}{2}=\frac{5}{2}$ $\quad x=-11$

$x=2.5$ $\quad x=\{-11,2.5\}$

Try It!

3. Michael was given the equation $(x + 7)(x - 11) = 0$ and asked to find the zeros. His solution set was $\{-11, 7\}$. Explain whether you agree or disagree with Michael.

$X = \{-7, 11\}$

4. Identify the solution(s) to $2(y - 3) \cdot 6(-y - 3) = 0$.

$y = \{-3, 3\}$

$2y - 6 = 0$
$+6 \quad +6$
$2y = 6$
$y = 3$

$-6y - 18 = 0$
$+18 \quad +18$
$-6y = 18$
$y = -3$

1. Use the values below to determine the solutions for each equation.

0	2	3	$\frac{4}{5}$
$\frac{2}{7}$	$-\frac{1}{2}$	$-\frac{3}{4}$	-14
6	0	$-\frac{1}{4}$	-2

$(2y+1)(y+14)=0$			
$(7n-2)(5n-4)=0$			
$(4x+3)(x-6)=0$			
$x(x+2)(x-3)=0$			
$t(4t+1)(t-2)=0$			