Name:_____ Date:_____

UNIT 9 LESSON 2

DO NOW

1. What are the four methods of factoring?

① GCF ② DOTS

③ Easy Tri ④ Hard Tri

2. Solve for the value of x :

$2x+5=0$

$-5\ -5$

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

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

3. What is the degree of this equation

$x^2-1=0$

two, b/c it is the highest exponent

4. Write in standard form: $-5x+2x^2-3$

$2x^2-5x-3$

AIM: Solving quadratic equations in <u>standard form</u> (DAY 1)

Method	Quadratic Equation
1. Easy Tri	$x^2-2x-15=0$ $(x-5)\mid(x+3)=0$ $x-5=0 \mid x+3=0$ $+5\ +5 \mid -3\ -3$ $x=5 \mid x=-3$ 15 → 1, 15 → 3, 5 $\{5,-3\}$
2. G.C.F	$\frac{2x^2}{2x}-\frac{4x}{2x}=0$ $2x\mid(x-2)=0$ $\frac{2x}{2}=\frac{0}{2} \mid x-2=0$ $x=0 \mid +2\ +2$ $x=2$ $\{0,2\}$
3. DOTS	$\sqrt{x^2}-\sqrt{9}=0$ $(x-3)\mid(x+3)=0$ $x-3=0 \mid x+3=0$ $+3\ +3 \mid -3\ -3$ $x=3 \mid x=-3$ OR $x^2-9=0$ $+9\ +9$ $\sqrt{x^2}=\sqrt{9}$ $x=\pm 3$ $\{\pm 3\}$

STEPS FOR SOLVING QUADRATIC EQUATIONS ALGEBRAICALLY

1. Factor
2. T-Bar & set each factor equal to zer
3. Solve for each resulting equation
4. check!

4. Easy tri

$$x^2+4x+4=0$$

$$(x+2)\,|\,(x+2)=0$$

$$x+2=0 \quad | \quad x+2=0$$

$$-2\ -2 \quad | \quad -2\ -2$$

$$x=-2 \quad | \quad x=-2$$

$\{-2\}$

4
1,4
2,2

Sometimes the roots of the quadratic equations are the same number. These are called a double root. It may be written only once in the solution set.

5. Hard tri

$$2x^2-x-15=0$$

$$\frac{2x^2}{2x}-\frac{6x}{2x} \quad | \quad \frac{+5x}{5}-\frac{15}{5}$$

same

$$2x(x-3) \quad | \quad 5(x-3)$$

$$(x-3)$$

$$(x-3)\,|\,(2x+5)=0$$

$$x-3=0 \quad | \quad 2x+5=0$$

$$+3\ +3 \quad | \quad -5\ -5$$

$$x=-3 \quad | \quad \frac{2x}{2}=\frac{-5}{2}$$

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

$\left\{-3,-\frac{5}{2}\right\}$

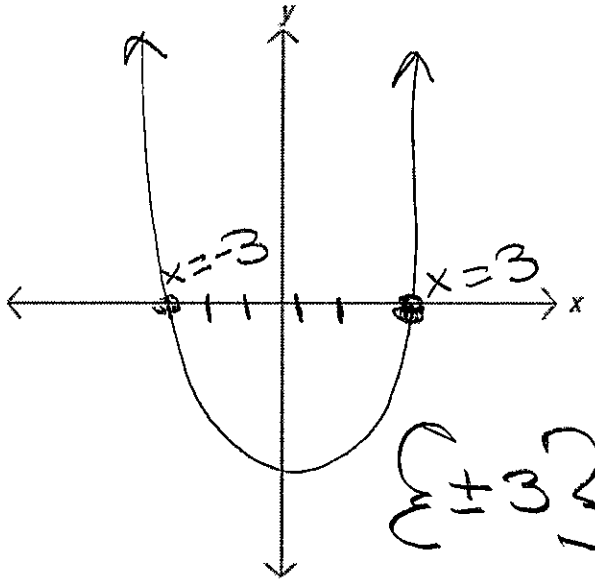
30
1,30
2,15
3,10
5,6

The answers to the quadratic equations are referred to as the

1. Solutions
2. Roots
3. X-intercepts
4. Zero's **of the function.**

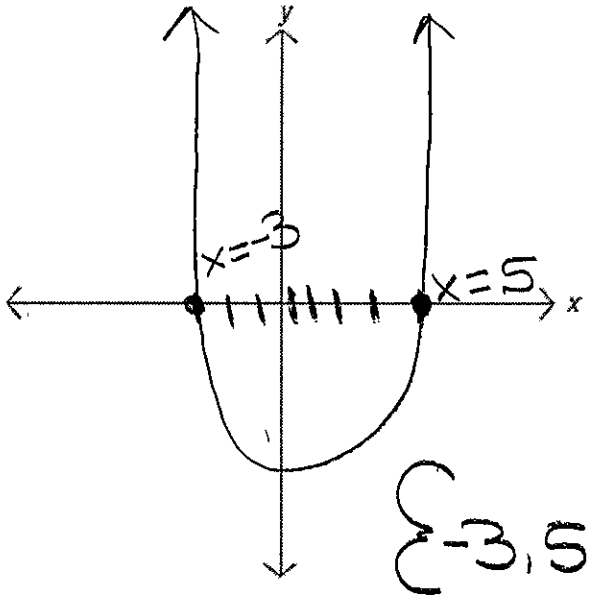
The graph of a quadratic equation is called a parabola

1. $y = x^2 - 9$



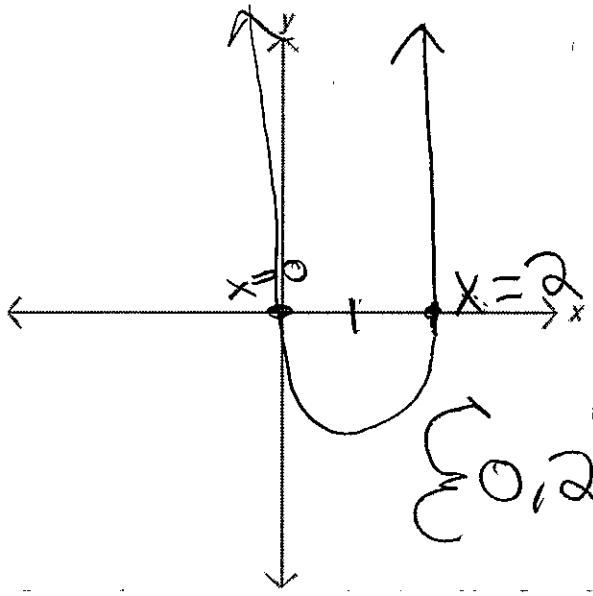
$\{\pm 3\}$

2. $y = x^2 - 2x - 15$



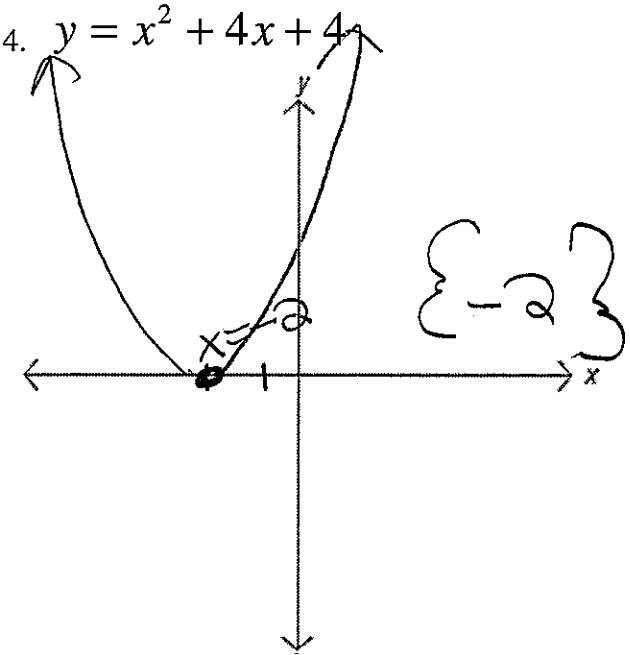
$\{-3, 5\}$

3. $y = 2x^2 - 4x$



$\{0, 2\}$

4. $y = x^2 + 4x + 4$



$\{-2\}$