Name:_____ Date:_____

UNIT 9 **LESSON 3**

Do Now:

a) What is the standard form of a quadratic equation?

$ax^2+bx+c=0$

b) Factor: $x^2+10x-24$

$(x+12)(x-2)$

1, 24
2, 12
3, 8
4, 6

c) Factor: x^2+3x G.C.F

$x \cdot x$

$x(x+3)$

AIM: SOLVING QUADRATIC EQUATIONS (Day 2)

1) Put the following equations into standard form:

a) $x(x-4)=5$

$x^2-4x=5$
$-5 \quad -5$

$x^2-4x-5=0$

b) $x^2-10=9x$

$-9x \quad -9x$

$x^2-9x-10=0$

c) $x^2=3x+6$

$-3x \quad -3x$

$x^2-3x=6$
$-6 \quad -6$

$x^2-3x-6=0$

2) Algebraically solve for the roots: $y=x^2-4x-5$

replace y with zero $0=x^2-4x-5$

$(x-5)(x+1)=0$

$x-5=0$	$x+1=0$
$+5 \quad +5$	$-1 \quad -1$
$x=5$	$x=-1$

$\{5,-1\}$ ← Algebraically the answers to a Quadratic equatio

Steps for solving Quadratics Equations:

1. Put equation into standard form
2. Factor equation
3. T-bar and set each factor equal to zero
4. Solve each resulting equation

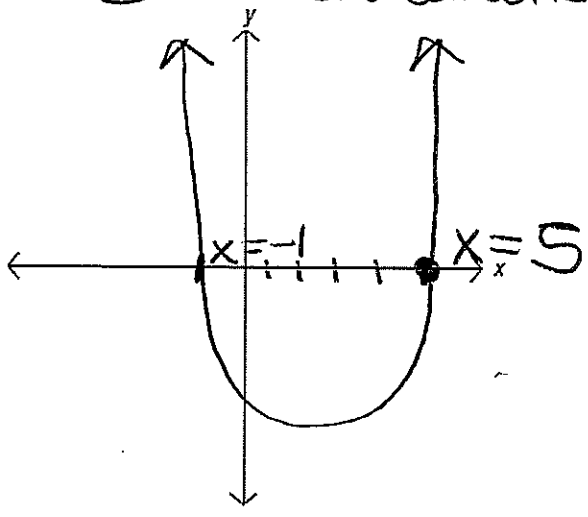
Check either:

a. Algebraically-substitute solutions back into the original equation

b. Graphically-use calculator to look for where the parabola crosses the x-axis.

3) Graphically solve for the roots: $y=x^2-4x-5$

x	y	
-1	0	root 1
0	-5	
1	-8	
2	-9	
3	-8	
4	-5	
5	0	root 2



4) What are the zeros of the function?

$x^2 - 4x = 0$

$x \quad x$

$x \mid (x-4) = 0$

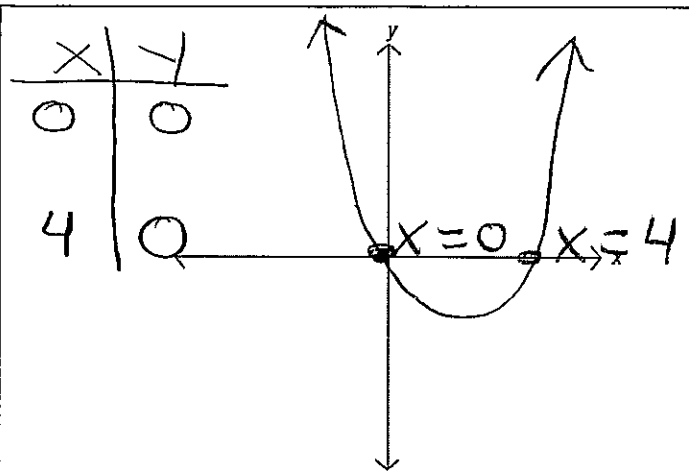
$x = 0 \mid x - 4 = 0$

$+4 \quad +4$

$x = 4$

$\{0, 4\}$

x	y
0	0
4	0



5) Solve for the roots: $x^2 - 25 = 0$

$(x-5) \mid (x+5) = 0$

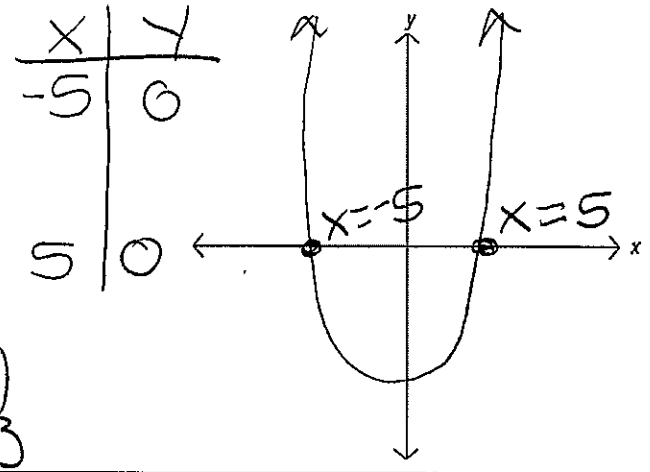
$x - 5 = 0 \mid x + 5 = 0$

$+5 \quad +5 \mid -5 \quad -5$

$x = 5 \mid x = -5$

$\{\pm 5\}$

x	y
-5	0
5	0



6) Solve for the x-intercepts: $x^2 + 2x - 15 = 0$

$(x+5) \mid (x-3) = 0$

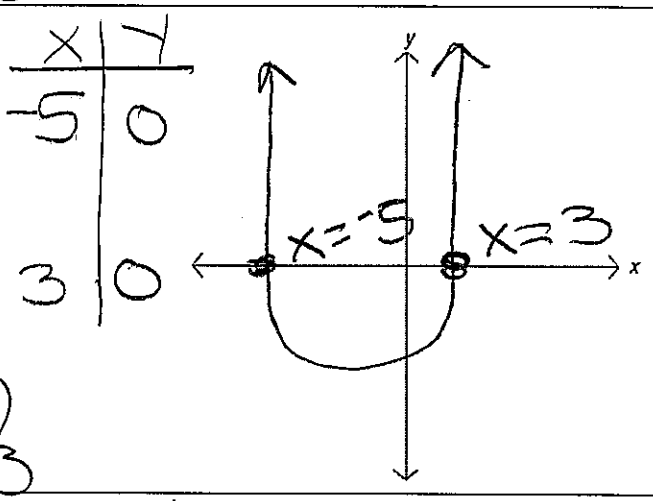
$x + 5 = 0 \mid x - 3 = 0$

$-5 \quad -5 \mid +3 \quad +3$

$x = -5 \mid x = 3$

$\{-5, 3\}$

x	y
-5	0
3	0



7) Solve for the roots: $x^2 - x = 6$

$-6 \quad -6$

$x^2 - x - 6 = 0$

$(x-3) \mid (x+2) = 0$

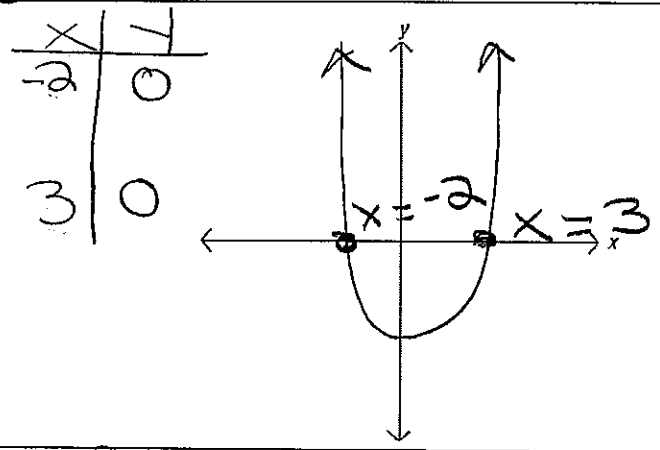
$x - 3 = 0 \mid x + 2 = 0$

$+3 \quad +3 \mid -2 \quad -2$

$x = 3 \mid x = -2$

$\{3, -2\}$

x	y
-2	0
3	0



8) What are the zeros of the function? $x^2 = 8x - 16$

$-8x \quad -8x$

$x^2 - 8x = -16$

$+16 \quad +16$

$x^2 - 8x + 16 = 0$

$(x-4)(x-4) = 0$

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

$+4 \quad +4 \quad | \quad +4 \quad +4$

$x = 4 \quad | \quad x = 4$

$\{4\}$

9) Solve for the x-intercepts: $(x - 5)(x^2 - 16) = 0$

$(x-5)(x-4)(x+4) = 0$

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

$+5 \quad +5 \quad | \quad +4 \quad +4 \quad | \quad -4 \quad -4$

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

$\{5, 4, -4\}$

10) What are the zeros of the function? $\frac{x-3}{7} = \frac{10}{x}$

$x(x-3) = 7(10)$

$x^2 - 3x = 70$

$-70 \quad -70$

$x^2 - 3x - 70 = 0$

$(x-10)(x+7) = 0$

$x - 10 = 0 \quad | \quad x + 7 = 0$

$+10 \quad +10 \quad | \quad -7 \quad -7$

$x = 10 \quad | \quad x = -7$

$\{10, -7\}$