Name: Key Algebra II Period: _____

Homework: Solving Quadratic Equations by Factoring/Graphing Intercepts

1.) State the intercepts of the following equation: $f(x) = x^2 + x - 12$

$(x+4)(x-3)=0$ $x+4=0$ $x-3=0$

$-4\ -4$ $+3\ +3$

$x=-4$ $x=3$

-12

4 -3

1

X-intercept(s): $-4, 3$ Y-Intercept: -12

2.) Solve the following quadratic equation: $f(x) = 4x^2 + 11x + 6$

$(4x^2 + 8x + 3x + 6) = 0$

$4x(x+2)+3(x+2)=0$

$(4x+3)(x+2)=0$

$4x+3=0$ $x+2=0$

$-3\ -3$ $-2\ -2$

$\frac{4x}{4}=\frac{-3}{4}$ $x=-2$

$x=-3/4$

24

8 3

11

Directions: Solve the quadratic equations by factoring. Then, graph the equation by plotting the intercepts.

1.) $f(x) = x^2 - 6x - 7$

$a=1\ b=-6\ c=-7$

$(x-7)(x+1)=0$

$x-7=0$ $x+1=0$

$+7\ +7$ $-1\ -1$

$x=7$ $x=-1$

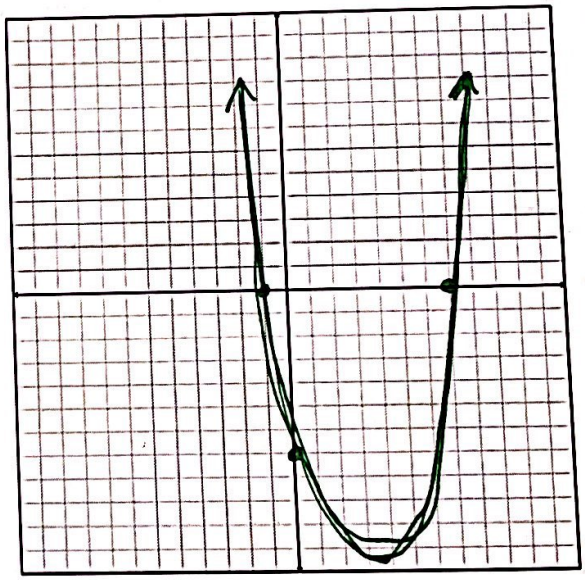
y-intercept = -7

-7

-7 1

-6

x-intercepts = -1, 7



2.) $f(x) = -x^2 + 2x + 8$

$a=-1\ b=2\ c=8$

$(-x^2 + 4x - 2x + 8) = 0$

$-x(x-4)-2(x-4)=0$

$(-x-2)(x-4)=0$

$-x-2=0$ $x-4=0$

$+2\ +2$ $+4\ +4$

$\frac{-x}{-1}=\frac{2}{-1}$ $x=4$

$x=-2$

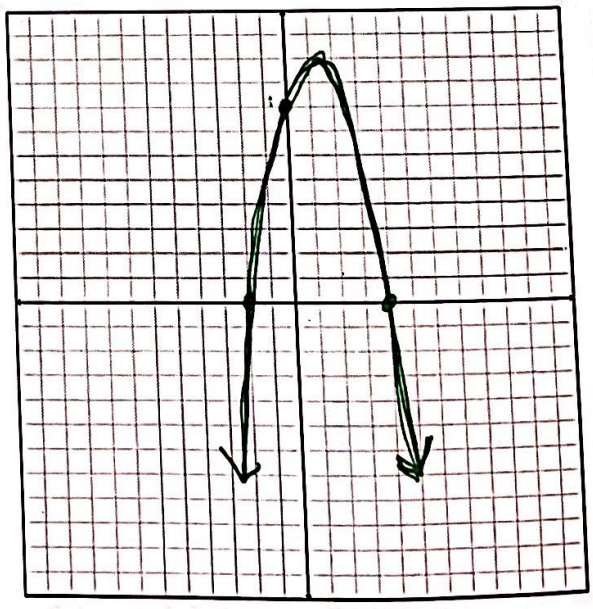
y-intercept = 8

-8

4 -2

2

x-intercepts = -2, 4



Scanned with CamScanner

Name: _____ Algebra II Period: _____

3.) $f(x) = 2x^2 + 9x + 9$

y-intercept = 9

$a=2 \quad b=9 \quad c=9$

$(2x^2+3x)+(6x+9)=0$

18	
3	6
9	

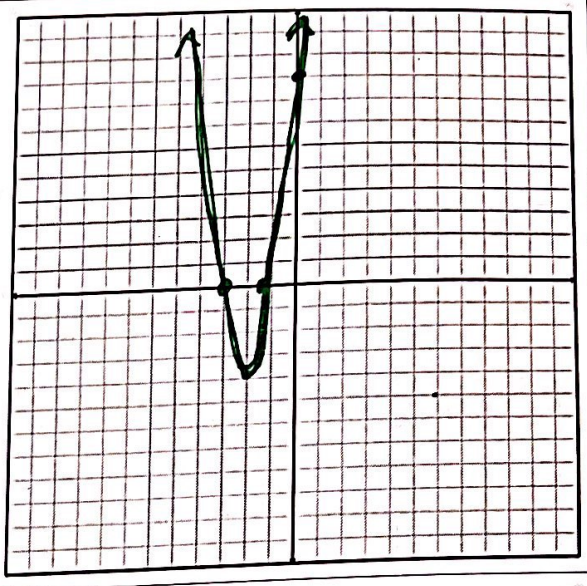
$x(2x+3)+3(2x+3)=0$

$(x+3)(2x+3)=0$

$x+3=0 \qquad 2x+3=0$

$\boxed{x=-3} \qquad 2x=-3$

$\boxed{x=\frac{-3}{2}} \approx -1.5$



4.) $f(x) = x^2 + 6x + 9$

y-intercept = 9

$a=1 \quad b=6 \quad c=9$

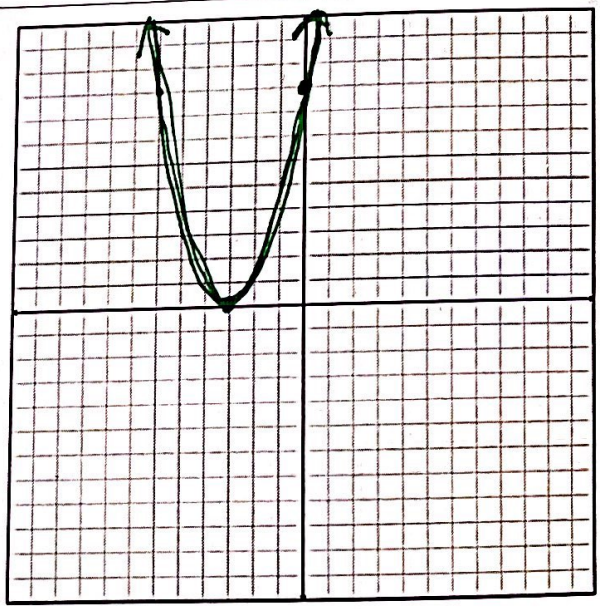
9	
3	3
6	

$(x+3)(x+3)=0$

$(x+3)^2=0$

$x+3=0$

$\boxed{x=-3}$ vertex is on the x-axis



5.) $f(x) = -3x^2 + 10x - 8$

y-intercept = -8

$a=-3 \quad b=10 \quad c=-8$

24	
6	4
10	

$(-3x^2+6x)+(4x-8)=0$

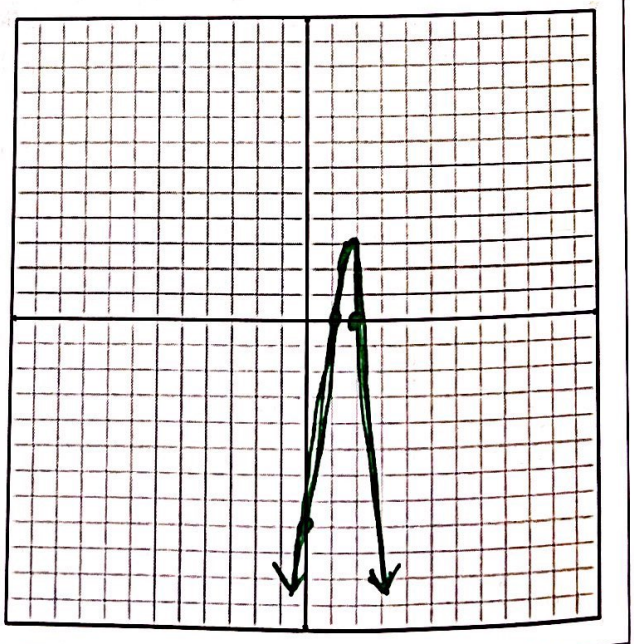
$-3x(x-2)+4(x-2)=0$

$(-3x+4)(x-2)=0$

$-3x+4=0 \qquad x-2=0$

$-3x=-4 \qquad \boxed{x=2}$

$\boxed{x=\frac{4}{3}} = 1\frac{1}{3}$



Scanned with CamScanner