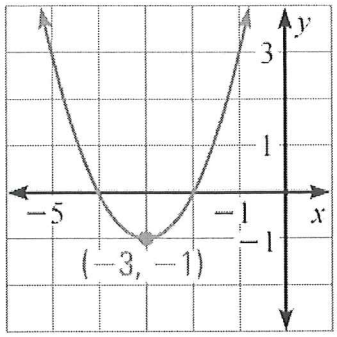
College Algebra Name: Key

Unit 2 LT 1 and 3 Review Date: _____ Period: _____

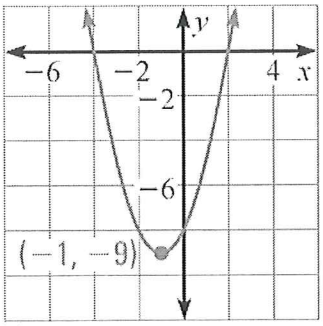
Match the function with its graph

1.) **A.** $y = (x+2)(x-4)$ $x=-2$ $x=4$



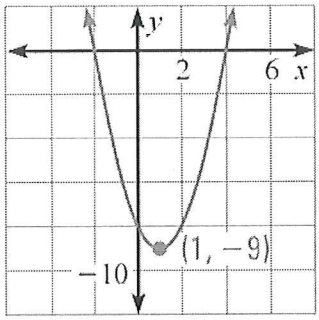
Function: C

B. $y = (x-2)(x+4)$ $x=2$ $x=-4$



Function: B

C. $y = (x+4)(x+2)$ $x=-4$ $x=-2$



Function: A

Solve each equation by factoring, and state all real solutions. Round any solutions to the nearest tenths place if necessary.

2.) $3x^3 = 2x^2 + 8x$

$3x^3 - 2x^2 - 8x = 0$

$x(3x^2 - 2x - 8) = 0$

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

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

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

$x = 0 \quad x = -4/3 \quad x = 2$

-1.3

-24, -6, 4, -2

3.) $3x^2 + 6x - 9 = 0$

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

$3(x+3)(x-1) = 0$

$x = -3 \quad x = 1$

4.) $7x^2 - 45x - 28 = 0$

$7x^2 + 4x - 49x - 28$

$x(7x+4) \quad -7(7x+4)$

$(7x+4)(x-7) = 0$

$x = -4/7 \quad x = 7$

$-.6$

-196, -49, 4, -45

5.) $21x^3 - 28x^2 = 6x - 8$

$21x^3 - 28x^2 - 6x + 8$

$7x^2(3x-4) \quad -2(3x-4)$

$(7x^2 - 2)(3x-4) = 0$

$x^2 = 2/7$

$x = \pm\sqrt{2/7}$

$x = \pm .5$

$x = 4/3$

1.3

6.) $28x^4 + 16x^3 - 80x^2 = 0$

$4x^2(7x^2 + 4x - 20) = 0$

$7x^2 + 14x - 10x - 20$

$7x(x+2) - 10(x+2)$

$4x^2(7x-10)(x+2) = 0$

$x = 0$ $x = 0$ $x = \frac{10}{7}$ $x = -2$

7.) $25x^2 - 16 = 0$

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

$x = 4/5$	$x = -4/5$
.8	-.8

8.) $x^2 - 5x - 36 = 0$

$(x-9)(x+4) = 0$

$x = 9$ $x = -4$

9.) $6x^2 + 10 = -19x$

$6x^2 + 19x + 10 = 0$

$6x^2 + 15x + 4x + 10$

$3x(2x+5)$ $2(2x+5)$

$(3x+2)(2x+5) = 0$

$x = -2/3$	$x = -5/2$
-.7	-2.5

State the real zeros of each polynomial function.

10.) $(t+3)^2 = 0$

$t+3=0$ $t+3=0$

$t = -3$ $t = -3$

11.) $2(4m-5)(m-3)(3m-4) = 0$

$m = 5/4$ $m = 3$ $m = 4/3$

Write the equation of a quadratic function given the vertex and a point on the function.

12.) vertex: (-1, -3); (1,5)

h k x y

$5 = a(1+1)^2 - 3$

$5 = a(2)^2 - 3$

$5 = 4a - 3$

$8 = 4a$

$2 = a$

$f(x) = 2(x+1)^2 - 3$

13.) vertex: (2, -7); (0, 5)

h k x y

$5 = a(0-2)^2 - 7$

$5 = a(-2)^2 - 7$

$5 = 4a - 7$

$12 = 4a$

$3 = a$

$f(x) = 3(x-2)^2 - 7$

Find the following information for each function, then graph.

14.) $f(x) = 2x^3 + 3x^2 - 7x - 6$

Degree: 3

Leading Coefficient: 2

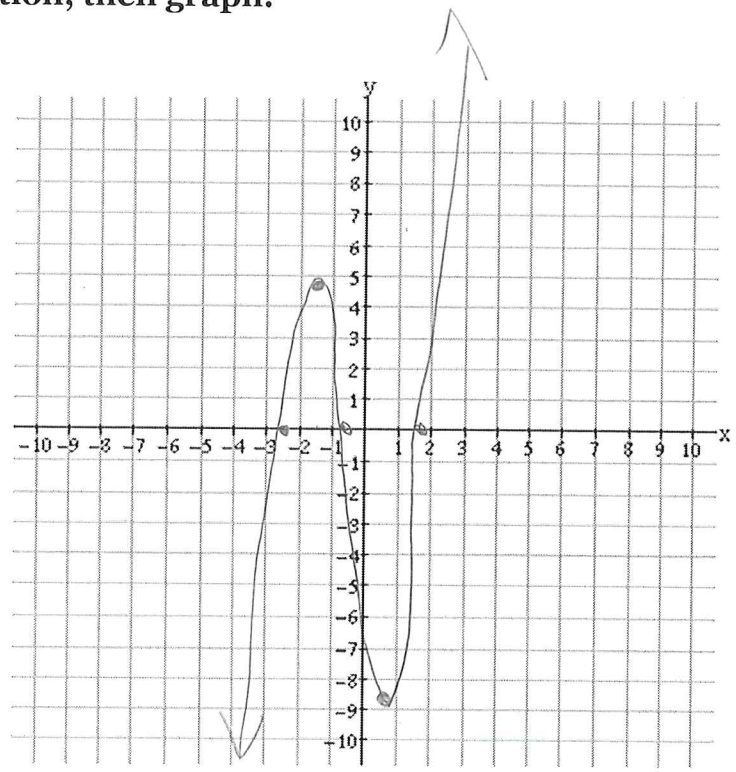
Zero(s): $x = 1.7$ $x = -.7$ $x = -2.4$

Relative Max: $(-1.7, 4.7)$

Relative Min: $(.7, -8.7)$

Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$



15.) $f(x) = x^3 + x^2 - 6x$

Degree: 3

Leading Coefficient: 1

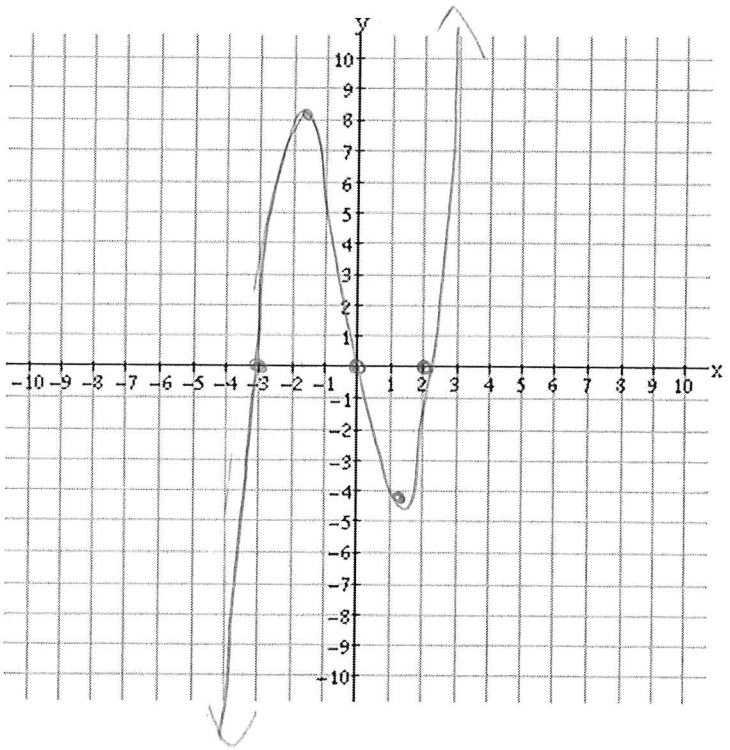
Zero(s): $x = 0$ $x = 2$ $x = -3$

Relative Max: $(-1.8, 8.2)$

Relative Min: $(1.1, 4.1)$

Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$



$-x^4 - 6x^3 - 9x^2$

16.) $f(x) = x + 2x^2 + 4x - 7$

Degree: 4

Leading Coefficient: -1

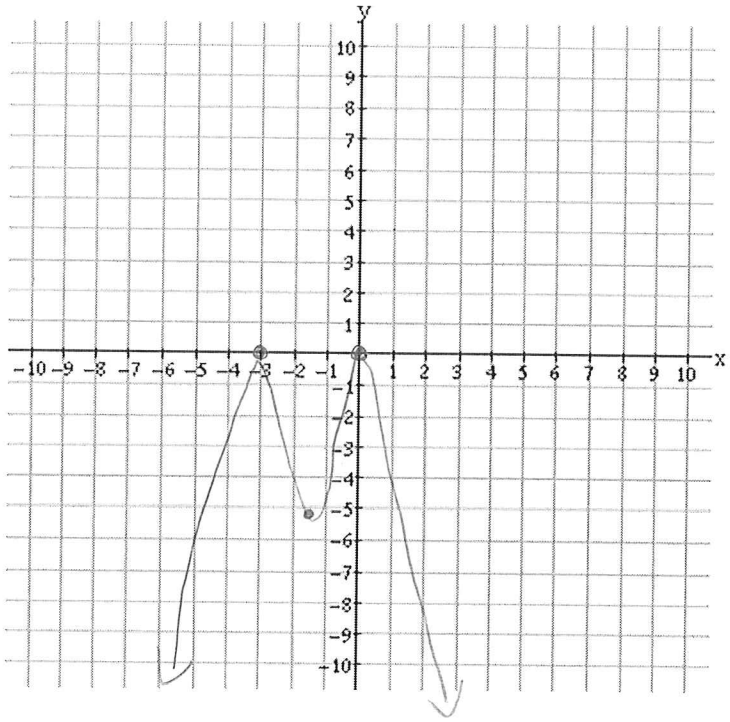
Zero(s): $x = 0$ $x = 0$ $x = -3$ $x = -3$

Relative Max: $(0,0)$ $(-3,0)$

Relative Min: $(-1.5, -5.1)$

Domain: $(-\infty, \infty)$

Range: $(-\infty, 0]$



17.) $f(x) = -3x^2 + 2x + 6$

Degree: 2

Leading Coefficient: -3

Zero(s): $x = -1.1$ $x = 1.8$

Relative Max: $(.3, 6.3)$

Relative Min: none

Domain: $(-\infty, \infty)$

Range: $(-\infty, 6.3]$