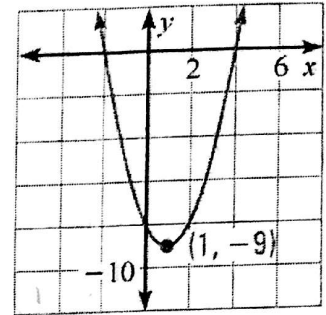
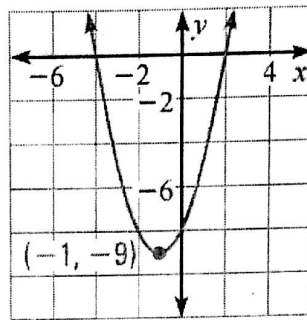
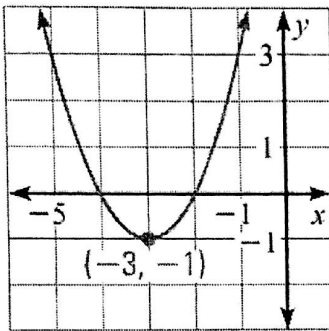


Match the function with its graph

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

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

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



Function: C

Function: B

Function: A

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

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

$3x^3 - 2x^2 - 8x = 0$ $\begin{matrix} -24 \\ -6 \times 4 \\ -2 \end{matrix}$

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

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

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

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

$x = 0, -\frac{4}{3}, 2$

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

$3(x^2 + 2x - 3) = 0$ $\begin{matrix} -3 \\ 3 \times -1 \end{matrix}$

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

$x = -3, 1$

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

$(7x^2 - 49x) + (4x - 28) = 0$ $\begin{matrix} -196 \\ -49 \times 4 \\ -45 \end{matrix}$

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

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

$x = -\frac{4}{7}, 7$

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

$(21x^3 - 28x^2) - (6x - 8) = 0$

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

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

$x = \sqrt{2/7}, -\sqrt{2/7}, 4/3$

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

$$4x^2 [7x^2 + 4x - 20] = 0$$

$$4x^2 [(7x^2 + 4x) + (-10x - 20)] = 0$$

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

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

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

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

$$(x^2 - 9x) + (4x - 36) = 0$$

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

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

$$x = -4, 9$$

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

$$5x \cdot 5x \quad 4 \cdot 4$$

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

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

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

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

$$(6x^2 + 15x) + (4x + 10) = 0$$

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

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

$$x = -\frac{2}{3}, -\frac{5}{2}$$

State the real zeros of each polynomial function.

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

$$t = -3, -3$$

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

$$m = \frac{5}{4}, 3, \frac{4}{3}$$

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

$$12.) \quad \text{vertex: } (-1, -3); (1, 5)$$

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

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

$$5 = a(4) - 3$$

$$8 = a(4)$$

$$2 = a$$

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

$$13.) \quad \text{vertex: } (2, -7); (0, 5)$$

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

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

$$5 = a(4) - 7$$

$$12 = a(4)$$

$$3 = a$$

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

Find the following information for each function, then graph.

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

Degree: 3

Leading Coefficient: 2

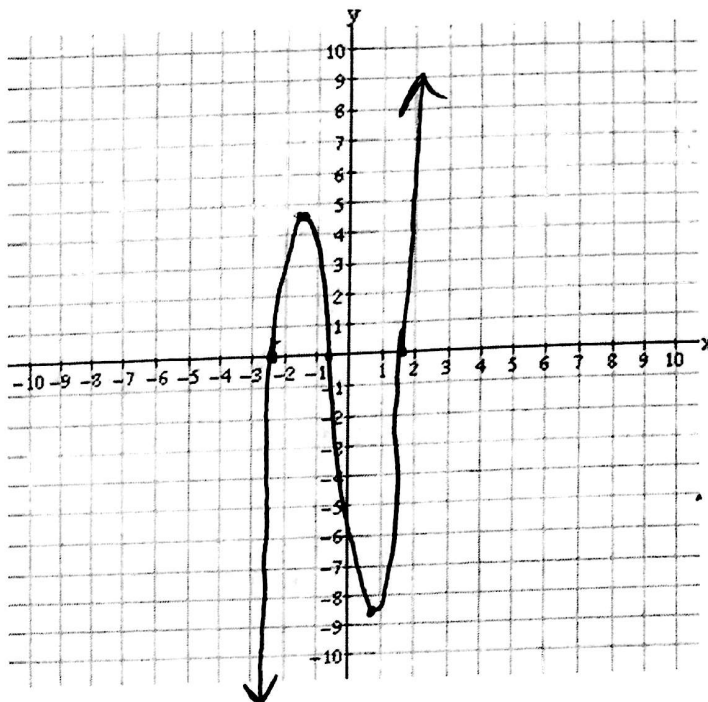
Zero(s): $x = -2.4, -.7, 1.7$

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

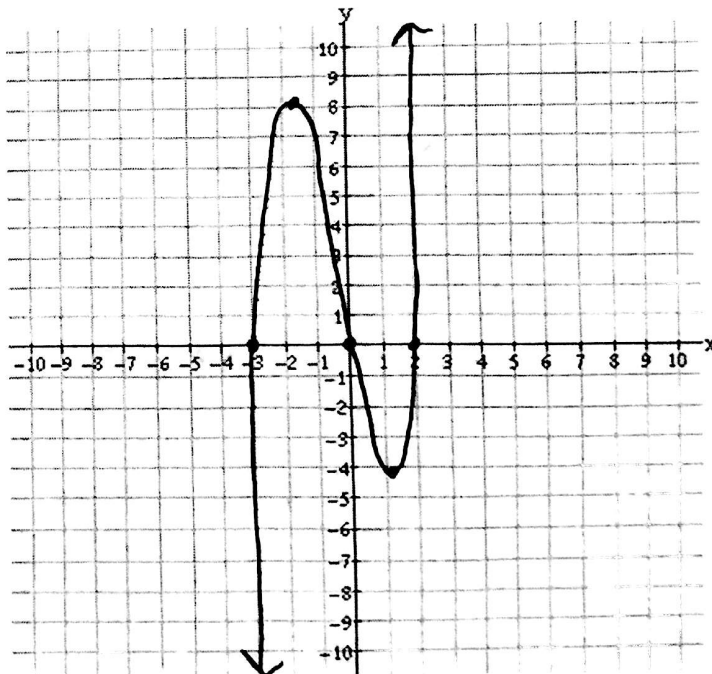
Zero(s): $x = -3, 0, 2$

Relative Max: $(-1.8, 8.2)$

Relative Min: $(1.1, -4.1)$

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

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



16.) $f(x) = -x^4 - 6x^3 - 9x^2$

Degree: 4

Leading Coefficient: -1

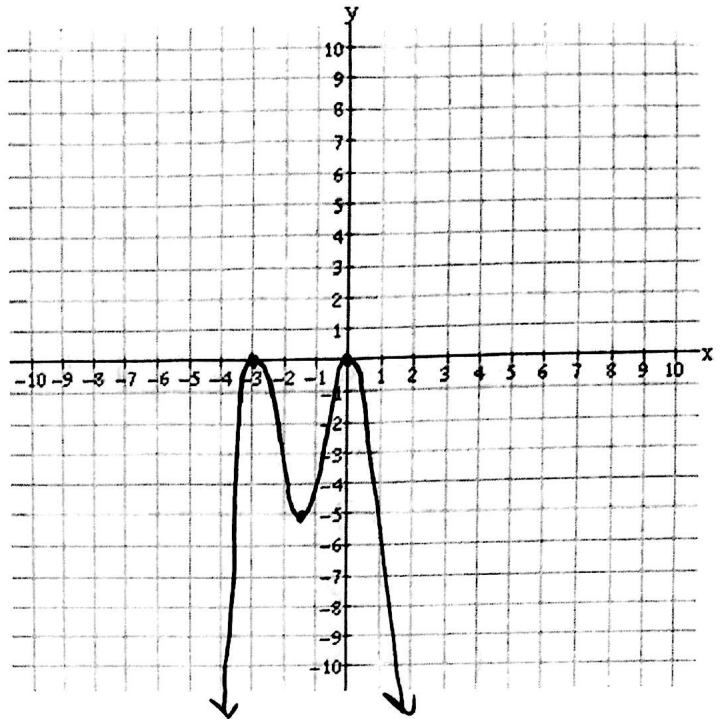
Zero(s): $x = -3, -3, 0, 0$

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

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): $x = -1.1, 1.8$

Relative Max: $(0.3, 6.3)$

Relative Min: /

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

Range: $[-\infty, 6.3)$

