See ANSWERS below on page 2.

For each quadratic equation, identify the x-intercept, y-intercept, axis of symmetry, vertex, and sketch a graph of the parabola.

1. $f(x) = x^2 - 6x + 8$
2. $f(x) = 2x^2 - 8x - 10$
3. $f(x) = x^2 - 4x - 12$
4. $f(x) = x^2 + 6x$
5. $f(x) = -x^2 + 2x - 2$
6. $f(x) = -4x^2 + 8x - 3$

graph in desmos to help you answer the questions

Write the equation of the parabola in standard form given the following conditions.

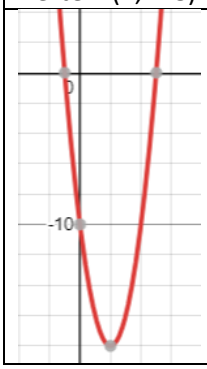
7. Passes through the points (-1, 0) (3, 0) and (0, -3).
8. Passes through the points (-4, 0) (-2, 0) and (-6, 8).
9. Has x-intercepts of -2 and 2 and passes through the point (0, 3).

Answers:

1.

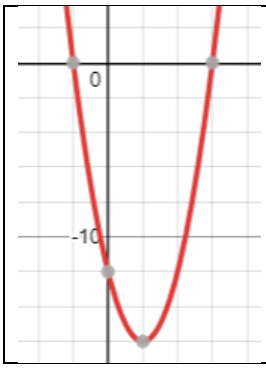
x-intercept: (4, 0) (2, 0)
y-intercept: (0, 8)
Axis of symmetry: x = 3
Vertex: (3, -1)


2.

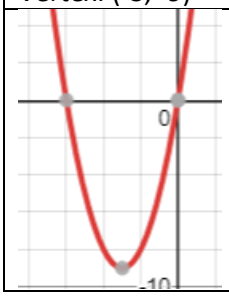
x-intercept: (-1, 0) (5, 0)
y-intercept: (0, -10)
Axis of symmetry: x = 2
Vertex: (2, -18)


3.

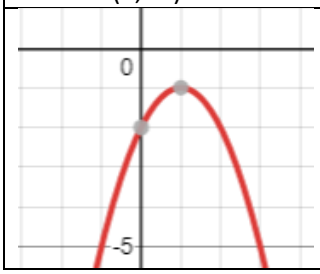
x-intercept: (6, 0) (-2, 0)
y-intercept: (0, -12)
Axis of symmetry: x = 2
Vertex: (2, -16)



4.

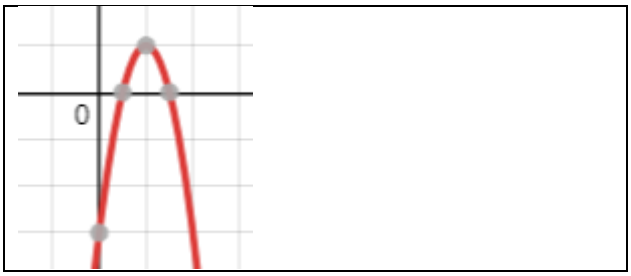
x-intercept: (0, 0) (-6, 0)
y-intercept: (0, 0)
Axis of symmetry: x = -3
Vertex: (-3, -9)


5.

x-intercept: none
y-intercept: (0, -2)
Axis of symmetry: x = 1
Vertex: (1, -1)


6.

x-intercept: (1/2, 0) (3/2, 0)
y-intercept: (0, -3)
Axis of symmetry: x = 1
Vertex: (1, 1)



7. $y = x^2 - 2x - 3$ x-ints $(-1,0)$ $(3,0)$, pt $(0,-3)$

$y = a(x+1)(x-3)$

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

$\frac{-3}{-3} = \frac{-3a}{-3}$ $a = 1$

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

$y = x^2 - 3x + x - 3$

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

8. $y = x^2 + 6x + 8$

x-int $(-4,0)$ $(-2,0)$ pt: $(-6,8)$

$y = a(x+4)(x+2)$

$8 = a(-6+4)(-6+2)$

$\frac{8}{8} = \frac{8a}{8}$ $a = 1$

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

$y = x^2 + 2x + 4x + 8$

$y = x^2 + 6x + 8$

9. $y = -3/4\ x^2 + 3$

x-int $-2, 2$ pt $(0,3)$

$y = a(x+2)(x-2)$

$3 = a(0+2)(0-2)$

$\frac{3}{-4} = \frac{-4a}{-4}$

$y = -\frac{3}{4}(x+2)(x-2)$

$y = -\frac{3}{4}(x^2 - 2x + 2x - 4)$

$y = -\frac{3}{4}(x^2 - 4)$

$y = -\frac{3}{4}x^2 + 3$