

3.1-3.2 Review

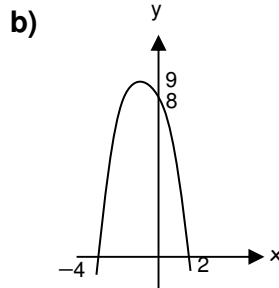
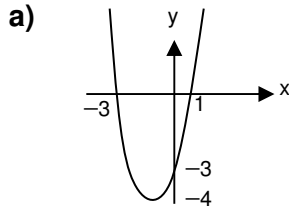
1. State whether each function is quadratic.

a) $y = x^3 - 15x$

b) $f(x) = (x + 4)(x - 4)$

2. For each graph, identify the following:

- the coordinates of the vertex
- the equation of the axis of symmetry
- the x-intercepts and y-intercept
- the domain and range



3. **How many** x-intercepts does each quadratic function have?

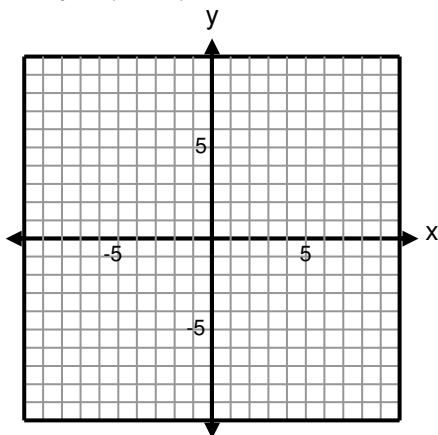
Provide a sketch to illustrate your answer.

a) axis of symmetry: $x = 0$
minimum value: -3

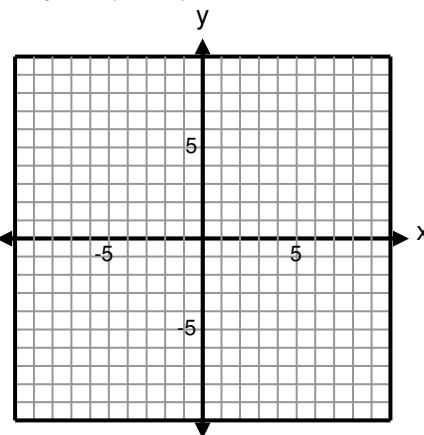
b) axis of symmetry: $x = 5$
range: $y \leq -4$

4. Sketch the graph of each function. Use large dots and fill up the grid.

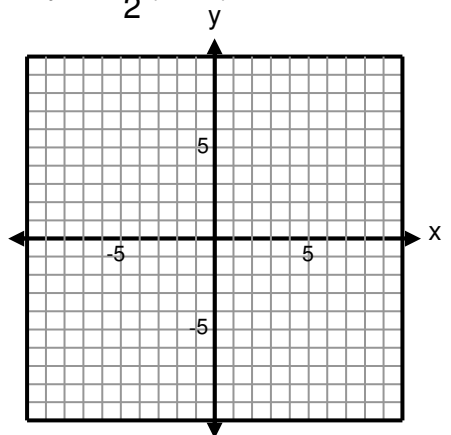
a) $y = (x - 6)^2$



b) $y = 2(x - 4)^2 - 1$



c) $y = -\frac{1}{2}(x + 2)^2$



5. State the vertex of each parabola.

a) $y = (x - 5)^2$

b) $y = x^2 - 5$

6. **Find** the x-intercepts of each parabola.

a) $y = x^2 - 36$

b) $y = x^2 + 9$

7. Determine a quadratic function in vertex form that has the given characteristics.

a) its vertex at (0, 0) and passes through the point (4, 8)

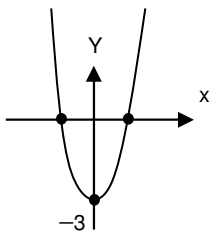
b) its vertex at (-2, 3) and passes through the point (1, -15)

Answers

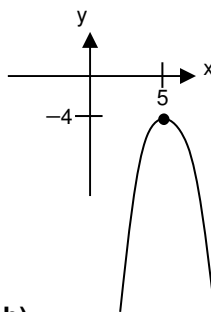
1. a) No b) Yes 5.

	a)	b)
Vertex	$(-1, -4)$	$(-1, 9)$
Axis of symmetry	$x = -1$	$x = -1$
x-intercepts	-3 and 1	-4 and 2
y-intercept	-3	8
Domain	$x \in \mathbb{R}$	$x \in \mathbb{R}$
Range	$y \geq -4$	$y \leq 9$

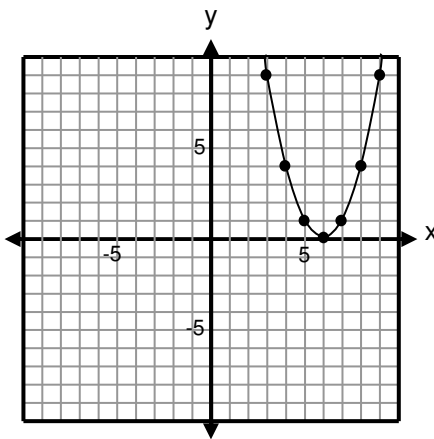
3. a) 2



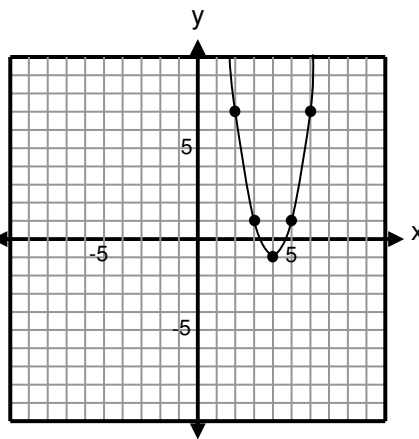
b) 0



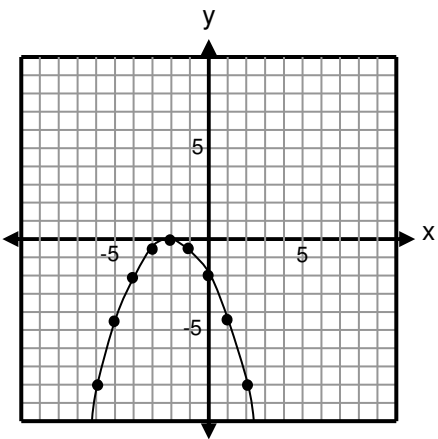
4. a)



b)



c)



5a) (5, 0) b) (0, -5)

6. a) $x = \pm 6$ b) no x-ints

7. a) $y = \frac{1}{2}x^2$

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