

### 7.3 Zeros of Quadratic Functions

For each function, do the following: a) state whether the function is in **standard**, **vertex**, or **factored** form, b) state whether the parabola opens **up** or **down**, c) find the **zeros** ( $x$ -values), d) state the  **$x$ -intercepts** (ordered pairs). On problems 7-10, also state e) the **axis of symmetry** (equation) and f) the **vertex** (ordered pair).

1.  $y = (2x - 5)(x - 3)$

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

Show work here:

2.  $f(x) = -5x(2x - 1)$

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

Show work here:

3.  $y = x^2 - 9$

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

Show work here:

4.  $y = 2x^2 + x - 10$

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

Show work here:

5.  $f(x) = -(x+2)^2 + 9$

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

Show work here:

6.  $y = -3(x-5)^2 + 6$

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

Show work here:

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

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

e) Axis of symmetry: \_\_\_\_\_

f) Vertex: \_\_\_\_\_

Show work here:

8.  $f(x) = 6x^2 - 12x$

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

e) Axis of symmetry: \_\_\_\_\_

f) Vertex: \_\_\_\_\_

Show work here:

9.  $y = x^2 + 12x + 32$

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

e) Axis of symmetry: \_\_\_\_\_

f) Vertex: \_\_\_\_\_

Show work here:

10.  $f(x) = (x-2)^2 - 1$

a) Form: \_\_\_\_\_

b) Direction of opening: \_\_\_\_\_

c) Zeros: \_\_\_\_\_

d)  $x$ -intercepts: \_\_\_\_\_

e) Axis of symmetry: \_\_\_\_\_

f) Vertex: \_\_\_\_\_

Show work here: