SM 2

Objective: Find the key features of graphs from their equations. Draw graphs from their key features. Match graphs to their equations.

For each function, fill out the requested information. Put a star by any information that can be seen just from looking at the equation. Graph the equation using its key features. Graph at least 5 points.

A. $f(x) = x^2 - 3x - 4$

1) Form: _____

2) $a =$ _____,   _____ = _____,   _____ = _____

3) Direction of opening: _____

4) Zeros: _____

5) x-intercepts: _____

6) y-intercept: _____

7) Axis of symmetry: _____

8) Vertex: _____

Show work here:

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

1) Form: _____

2) $a =$ _____,   _____ = _____,   _____ = _____
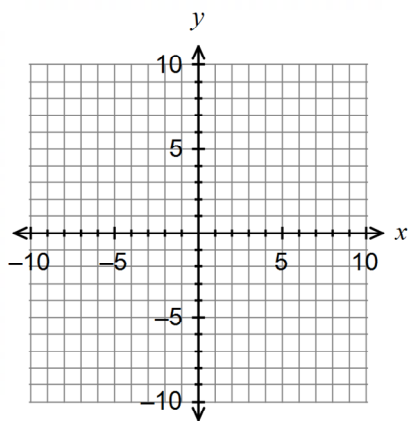
3) Direction of opening: _____

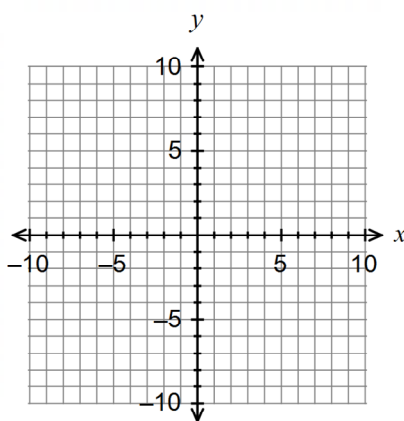4) Zeros: _____

5) x-intercepts: _____

6) y-intercept: _____

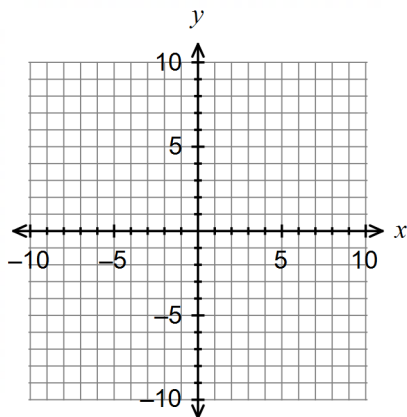7) Axis of symmetry: _____

8) Vertex: _____

Show work here:

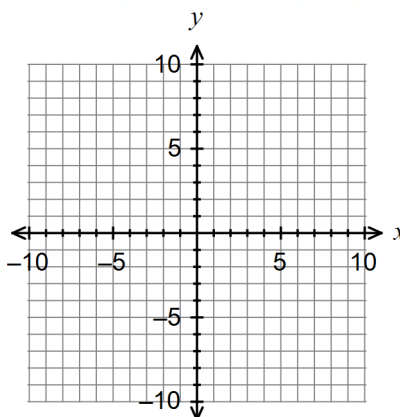| x	$f(x)$

x	y

C. $f(x) = -\dfrac{1}{4}(x+3)(x-6)$

D. $y = x^2 - 9$

1) Form: _____

1) Form: _____

2) $a =$ _____, _____ = _____, _____ = _____

2) $a =$ _____, _____ = _____, _____ = _____

3) Direction of opening: _____

3) Direction of opening: _____

4) Zeros: _____

4) Zeros: _____

5) x-intercepts: _____

5) x-intercepts: _____

6) y-intercept: _____

6) y-intercept: _____

7) Axis of symmetry: _____

7) Axis of symmetry: _____

8) Vertex: _____

8) Vertex: _____

Show work here:

Show work here:

x	$f(x)$

x	y

E. $f(x) = 2x^2 - 4x - 8$

1) Form: _____

2) $a =$ _____,   _____ = _____,   _____ = _____

3) Direction of opening: _____

4) Zeros: _____

5) x-intercepts: _____

6) y-intercept: _____

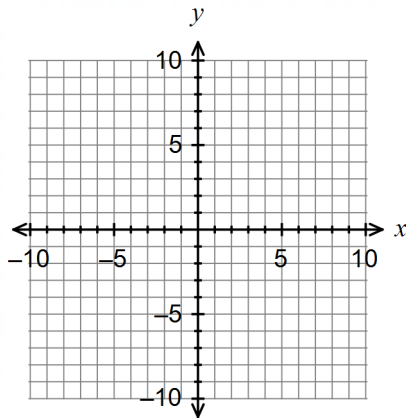7) Axis of symmetry: _____

8) Vertex: _____

Show work here:

F. $y = -x(x+4)$

1) Form: _____

2) $a =$ _____,   _____ = _____,   _____ = _____

3) Direction of opening: _____

4) Zeros: _____

5) x-intercepts: _____

6) y-intercept: _____

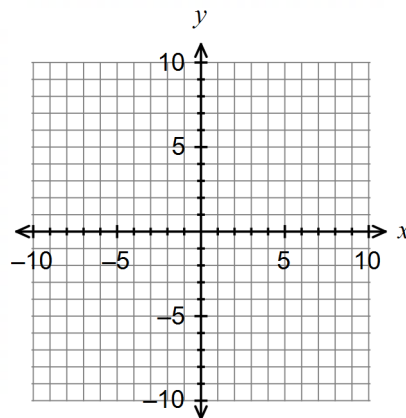7) Axis of symmetry: _____

8) Vertex: _____

Show work here:

x	$f(x)$

x	y

EXAMPLE: Given the graph, write the equation.
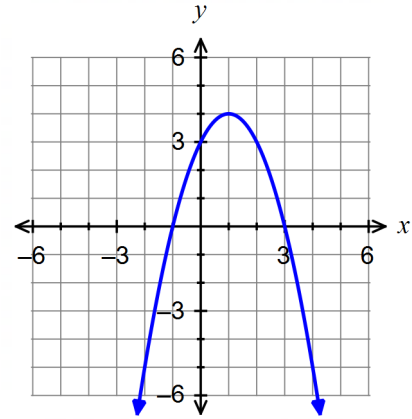
A. Write the equation of the graph in factored form.

Direction of opening: _____

Find the zeros: _____

$a =$_____ $p =$_____ $q =$_____

Equation in factored form: _____
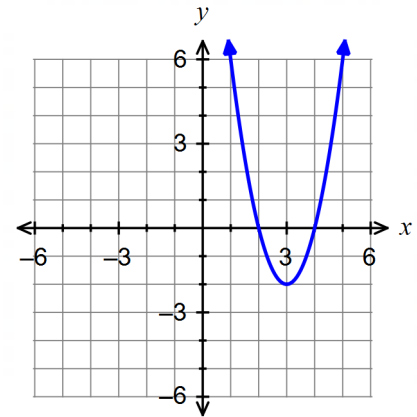
B. Write the equation of the graph in vertex form.

Direction of opening: _____

Vertex: _____

$a =$_____ $h =$_____ $k =$_____
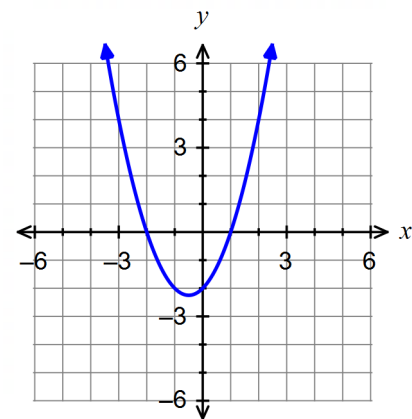
Equation in vertex form: _____

C. Write the equation of the graph in standard form.

Direction of opening: _____

Find the zeros: _____

$a =$_____ $p =$_____ $q =$_____

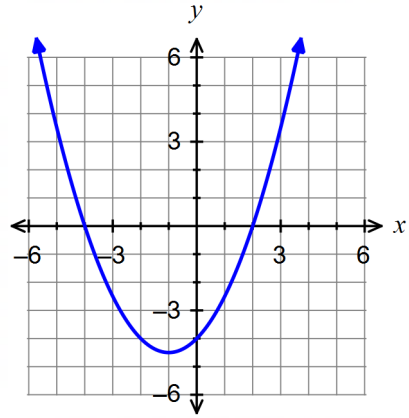Equation in factored form: _____

Equation in standard form: _____

D. Write the equation of the graph in factored form.

Direction of opening: _____

Find the zeros: _____

$a =$_____ $p =$_____ $q =$_____
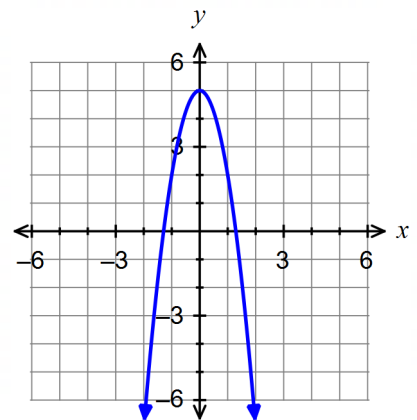
Equation in factored form: _____

E. Write the equation of the graph in vertex form.

Direction of opening: _____

Vertex: _____

$a =$_____ $h =$_____ $k =$_____

Equation in vertex form: _____

F. Write the equation of the graph in standard form.

Direction of opening: _____

Find the zeros: _____

$a =$_____ $p =$_____ $q =$_____

Equation in factored form: _____

Equation in standard form: _____