Name_____

Properties of Parabolas

Date_____ Period____

Identify the vertex of each.

1) $y = x^2 + 16x + 64$

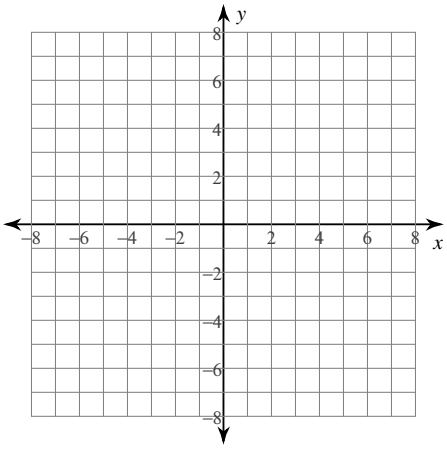
2) $y = 2x^2 - 4x - 2$

3) $y = -x^2 + 18x - 75$

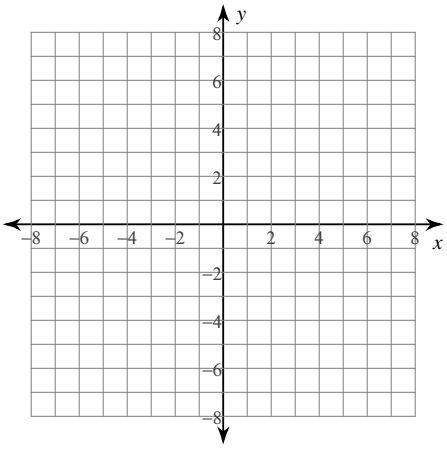
4) $y = -3x^2 + 12x - 10$

Graph each equation.

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

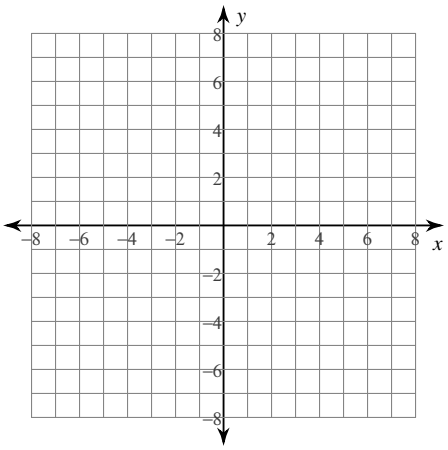


6) $y = -x^2 - 6x - 10$

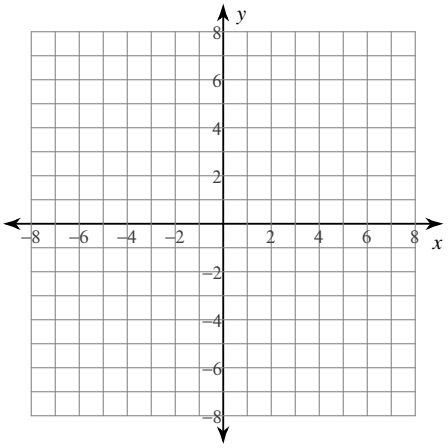


Identify the min/max value of each. Then sketch the graph.

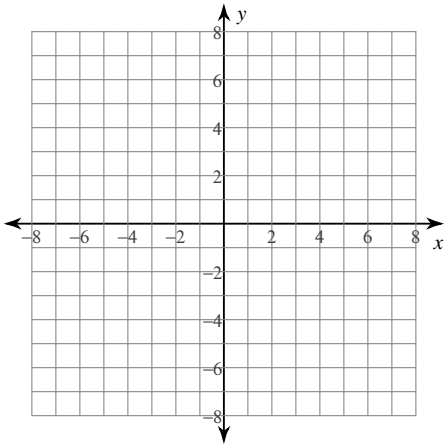
7) $f(x) = -\frac{1}{4}x^2 - 2x - 2$



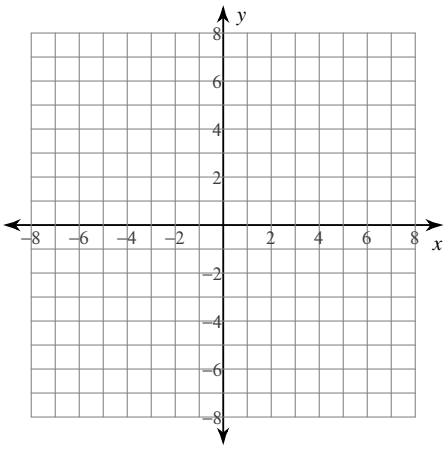
8) $f(x) = -x^2 - 4x$



9) $f(x) = x^2 - 12x + 39$



10) $f(x) = \frac{1}{3}x^2 - \frac{10}{3}x + \frac{13}{3}$



Identify the vertex, axis of symmetry, and min/max value of each.

11) $f(x) = -2x^2 - 36x - 164$

12) $f(x) = -7x^2 + 14x - 15$

13) $f(x) = -6x^2 + 12x - 4$

14) $f(x) = 10x^2 - 100x + 240$

Name_____

Properties of Parabolas

Date_____ Period____

Identify the vertex of each.

1) $y = x^2 + 16x + 64$

$(-8, 0)$

2) $y = 2x^2 - 4x - 2$

$(1, -4)$

3) $y = -x^2 + 18x - 75$

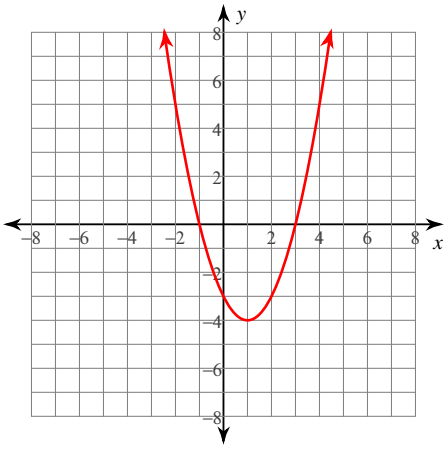
$(9, 6)$

4) $y = -3x^2 + 12x - 10$

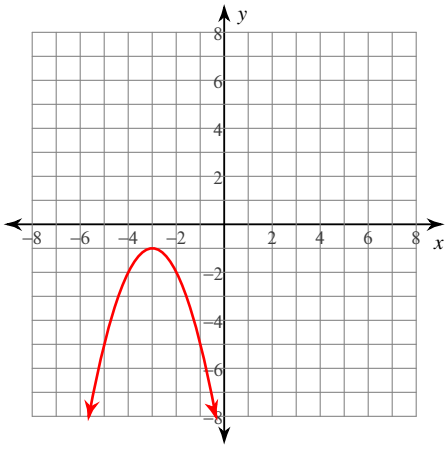
$(2, 2)$

Graph each equation.

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

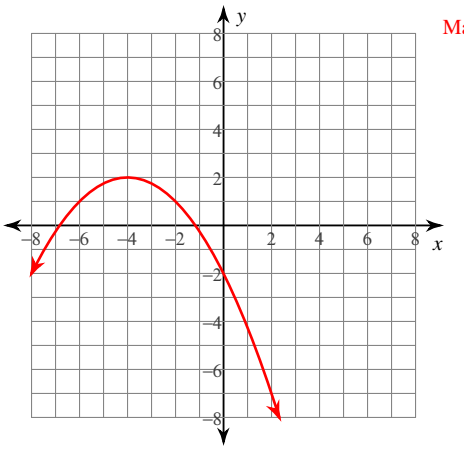


6) $y = -x^2 - 6x - 10$



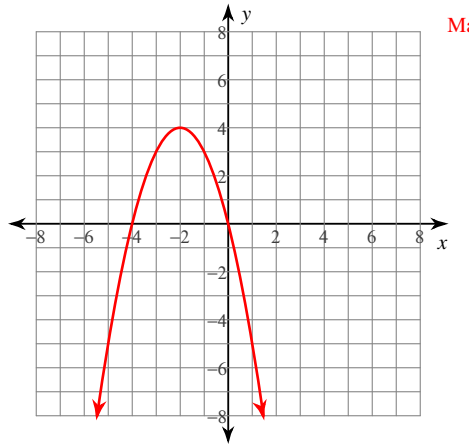
Identify the min/max value of each. Then sketch the graph.

7) $f(x) = -\frac{1}{4}x^2 - 2x - 2$



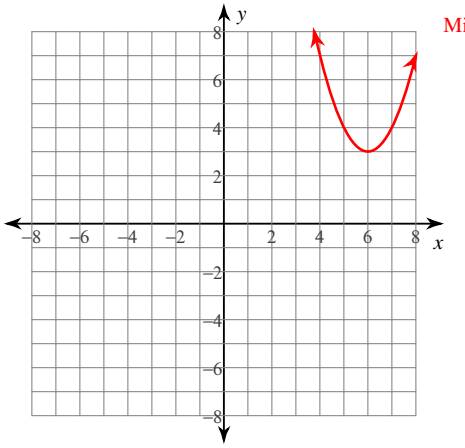
Max value = 2

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



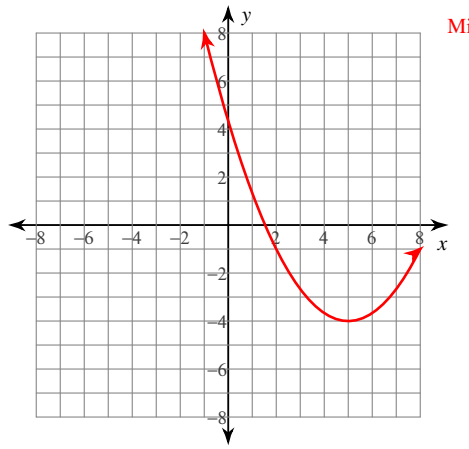
Max value = 4

9) $f(x) = x^2 - 12x + 39$



Min value = 3

10) $f(x) = \frac{1}{3}x^2 - \frac{10}{3}x + \frac{13}{3}$



Min value = –4

Identify the vertex, axis of symmetry, and min/max value of each.

11) $f(x) = -2x^2 - 36x - 164$

Vertex: $(-9, -2)$
Axis of Sym.: $x = -9$
Max value = –2

12) $f(x) = -7x^2 + 14x - 15$

Vertex: $(1, -8)$
Axis of Sym.: $x = 1$
Max value = –8

13) $f(x) = -6x^2 + 12x - 4$

Vertex: $(1, 2)$
Axis of Sym.: $x = 1$
Max value = 2

14) $f(x) = 10x^2 - 100x + 240$

Vertex: $(5, -10)$
Axis of Sym.: $x = 5$
Min value = –10