Kuta Software - Infinite Algebra 2 Name_____

# Properties of Parabolas

Date_____ Period____

**Identify the vertex of each.**

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

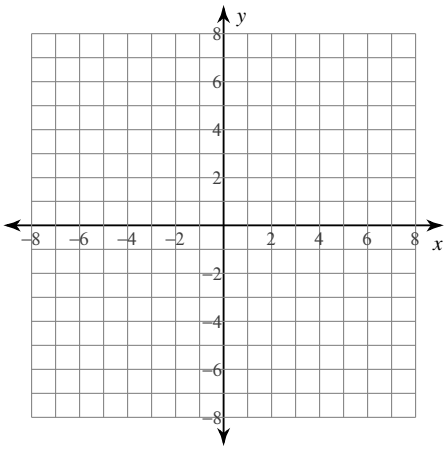
2) $y = 2x^2 - 4x - 2$

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

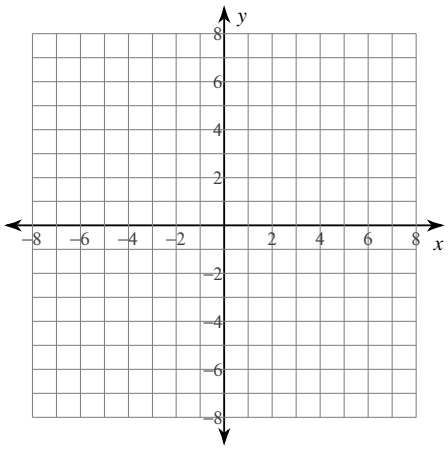
4) $y = -3x^2 + 12x - 10$

**Graph each equation.**

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

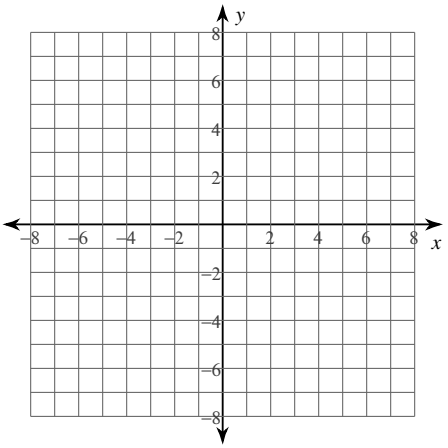



6) $y = -x^2 - 6x - 10$

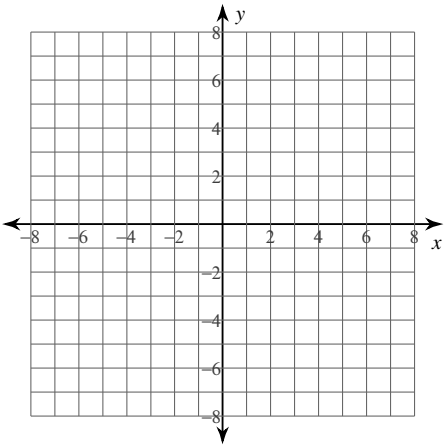



**Identify the min/max value of each. Then sketch the graph.**

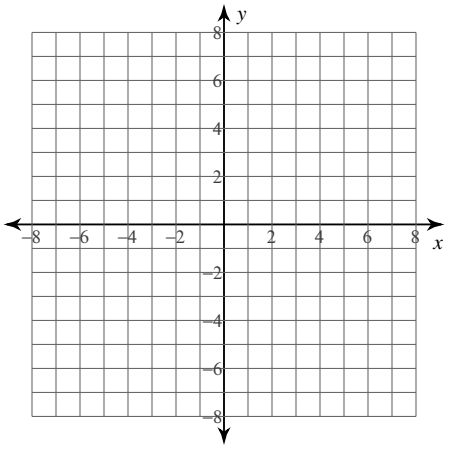
7) $f(x) = -x^2 + 8x - 20$



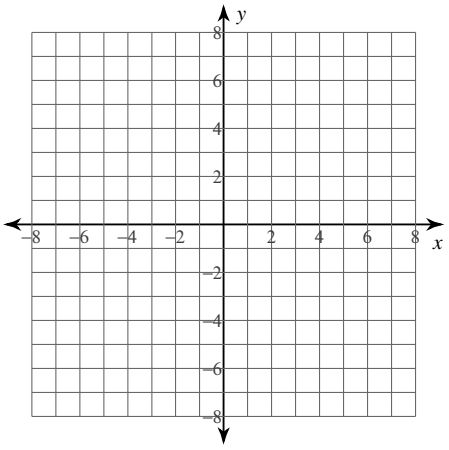

8) $f(x) = -\frac{1}{3}x^2 + \frac{4}{3}x - \frac{16}{3}$



9) $f(x) = x^2 + 2x - 1$




10) $f(x) = -x^2 - 10x - 30$




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

11) $f(x) = 3x^2 - 54x + 241$

12) $f(x) = x^2 - 18x + 86$

13) $f(x) = -\frac{4}{5}x^2 + \frac{48}{5}x - \frac{114}{5}$

14) $f(x) = -2x^2 - 20x - 46$

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

16) $f(x) = x^2 - 12x + 44$

17) $f(x) = \frac{1}{4}x^2 - x + 9$

18) $f(x) = x^2 + 4x + 5$

Kuta Software - Infinite Algebra 2 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) $y = -x^2 + 18x - 75$

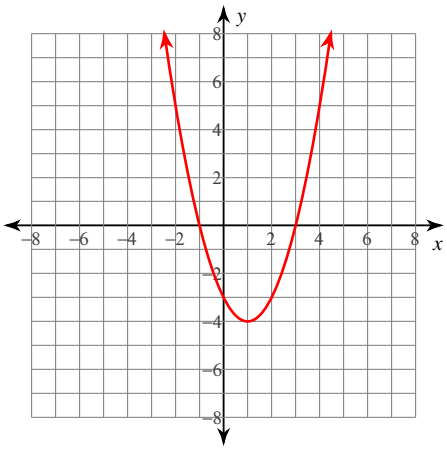
(9, 6)

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

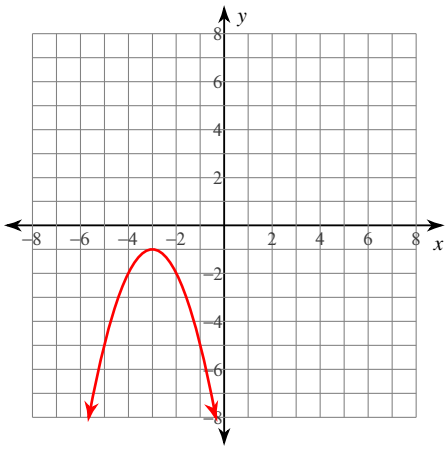
(2, 2)

**Graph each equation.**

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



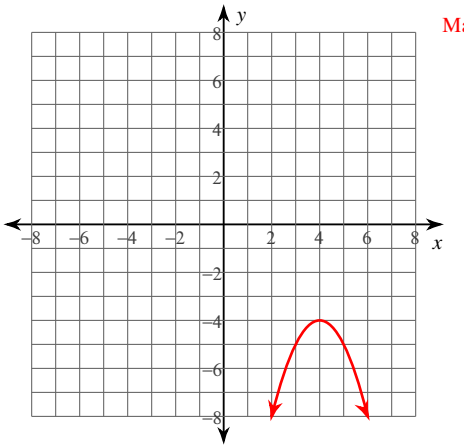

6) $y = -x^2 - 6x - 10$




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

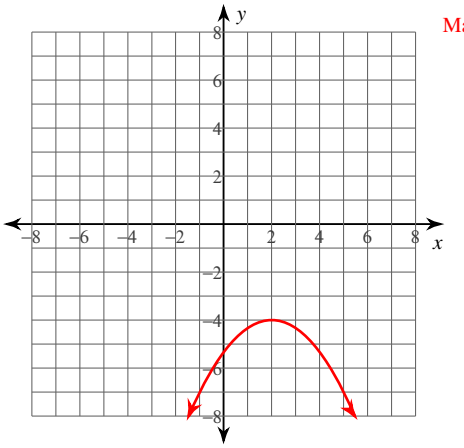
7) $f(x) = -x^2 + 8x - 20$

Max value = –4

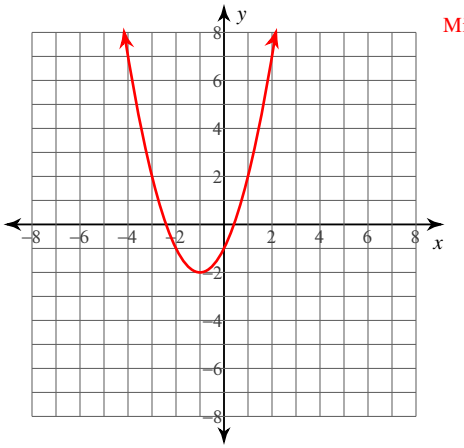



8) $f(x) = -\frac{1}{3}x^2 + \frac{4}{3}x - \frac{16}{3}$

Max value = –4

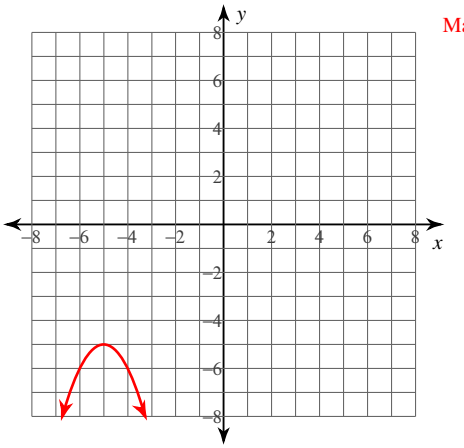


9) $f(x) = x^2 + 2x - 1$



Min value = –2

10) $f(x) = -x^2 - 10x - 30$



Max value = –5

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

11) $f(x) = 3x^2 - 54x + 241$

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

12) $f(x) = x^2 - 18x + 86$

Vertex: $(9, 5)$
Axis of Sym.: $x = 9$
Min value = 5

13) $f(x) = -\frac{4}{5}x^2 + \frac{48}{5}x - \frac{114}{5}$

Vertex: $(6, 6)$
Axis of Sym.: $x = 6$
Max value = 6

14) $f(x) = -2x^2 - 20x - 46$

Vertex: $(-5, 4)$
Axis of Sym.: $x = -5$
Max value = 4

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

Vertex: $(0, 7)$
Axis of Sym.: $x = 0$
Max value = 7

16) $f(x) = x^2 - 12x + 44$

Vertex: $(6, 8)$
Axis of Sym.: $x = 6$
Min value = 8

17) $f(x) = \frac{1}{4}x^2 - x + 9$

Vertex: $(2, 8)$
Axis of Sym.: $x = 2$
Min value = 8

18) $f(x) = x^2 + 4x + 5$

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