

Name : _____

Score : _____

Teacher : _____

Date : _____

Writing Equations of Parabolas

Use the info given to write the vertex form of each parabola.

- 1) Passes through points: $(-1, 28)$; $(-2, 13)$; $(-6, 13)$, and Opens Up or Down
- 2) Vertex at $(0,0)$, passes through $(-32, 4)$, and Opens Left or Right
- 3) Passes through points: $(1, 5)$; $(4, -1)$; $(2, -1)$, and Opens Up or Down
- 4) Passes through points: $(7, 24)$; $(3, 24)$; $(8, 44)$, and Opens Up or Down
- 5) Vertex at $(-8,5)$, passes through $(8, 7)$, and Opens Left or Right
- 6) Vertex at $(-4,4)$, passes through $(4, 6)$, and Opens Left or Right
- 7) Vertex at $(-4,2)$, passes through $(-22, 5)$, and Opens Left or Right
- 8) Vertex at $(3,7)$, passes through $(51, 11)$, and Opens Left or Right
- 9) Passes through points: $(-2, 39)$; $(-8, 39)$; $(-6, 7)$, and Opens Up or Down
- 10) Passes through points: $(-6, 0)$; $(-5, -10)$; $(-10, 0)$, and Opens Up or Down



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Writing Equations of Parabolas

Use the info given to write the vertex form of each parabola.

- 1) Passes through points: (-1, 28); (-2, 13); (-6, 13) , and Opens Up or Down

$$y = 3(x + 4)^2 + 1$$

- 2) Vertex at (0,0), passes through (-32, 4) , and Opens Left or Right

$$x = -2y^2$$

- 3) Passes through points: (1, 5); (4, -1); (2, -1) , and Opens Up or Down

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

- 4) Passes through points: (7, 24); (3, 24); (8, 44) , and Opens Up or Down

$$y = 4(x - 5)^2 + 8$$

- 5) Vertex at (-8,5), passes through (8, 7) , and Opens Left or Right

$$x = 4(y - 5)^2 - 8$$

- 6) Vertex at (-4,4), passes through (4, 6) , and Opens Left or Right

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

- 7) Vertex at (-4,2), passes through (-22, 5) , and Opens Left or Right

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

- 8) Vertex at (3,7), passes through (51, 11) , and Opens Left or Right

$$x = 3(y - 7)^2 + 3$$

- 9) Passes through points: (-2, 39); (-8, 39); (-6, 7) , and Opens Up or Down

$$y = 4(x + 5)^2 + 3$$

- 10) Passes through points: (-6, 0); (-5, -10); (-10, 0) , and Opens Up or Down

$$y = -2(x + 8)^2 + 8$$

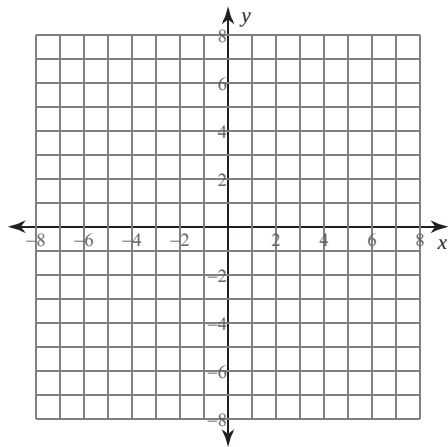


Parabolas

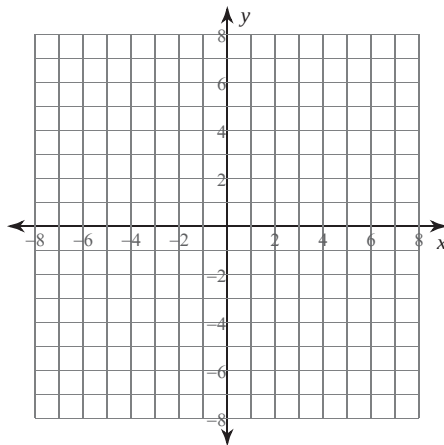
Date _____ Period _____

Identify the vertex, ~~focus~~, axis of symmetry, and ~~directrix~~ of each. Then sketch the graph.

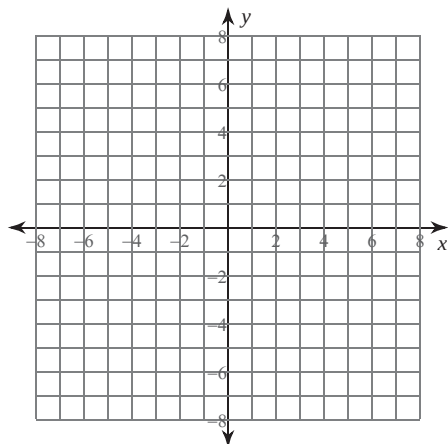
1) $y = -(x + 3)^2 - 1$



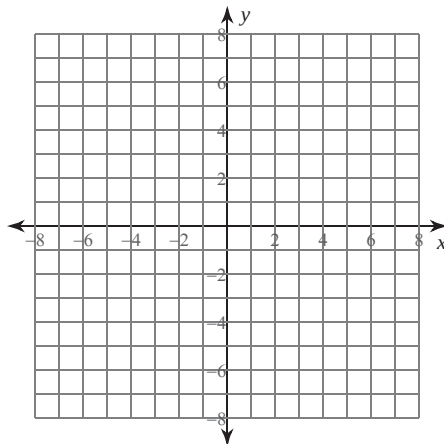
2) $x = -\frac{1}{4}(y + 2)^2$



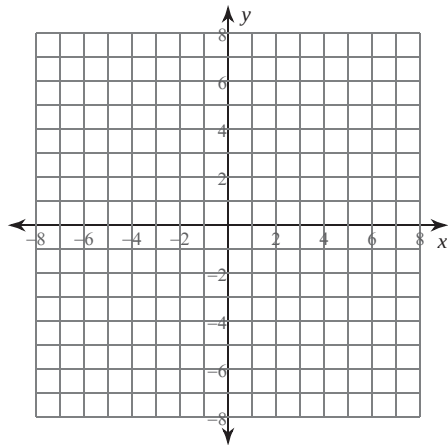
3) $-\frac{1}{3}(x - 3) = (y + 5)^2$



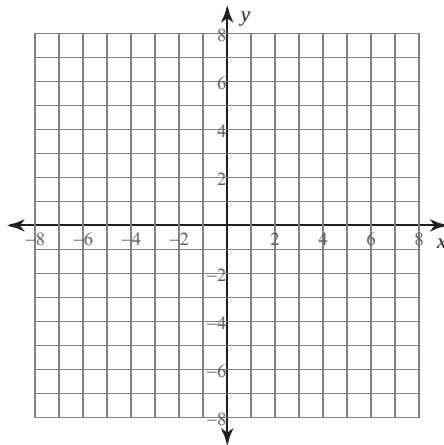
4) $-(y + 2) = (x - 2)^2$



5) $3y + 4x = -2x^2 - 14$



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

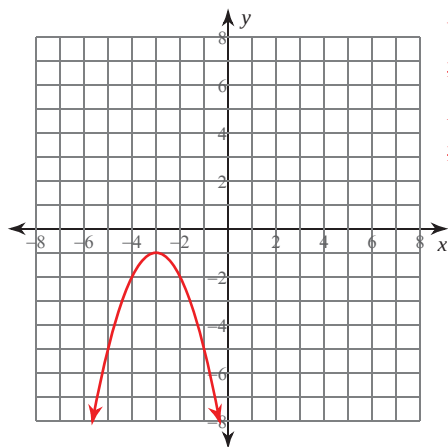


Parabolas

Date _____ Period _____

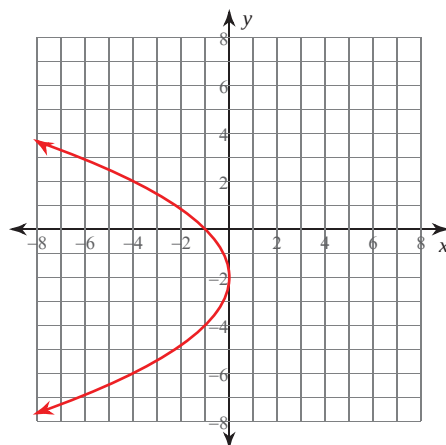
Identify the vertex, focus, axis of symmetry, and directrix of each. Then sketch the graph.

1) $y = -(x + 3)^2 - 1$



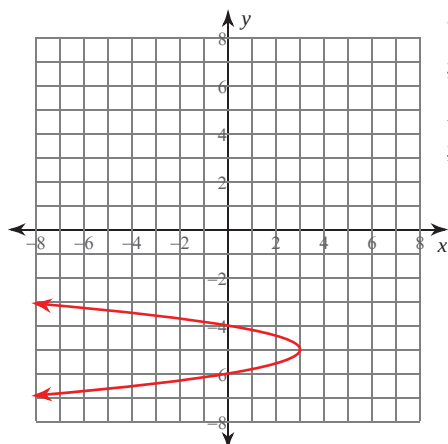
Vertex: $(-3, -1)$
 Focus: $(-3, -\frac{5}{4})$
 Axis of Sym.: $x = -3$
 Directrix: $y = \frac{3}{4}$

2) $x = -\frac{1}{4}(y + 2)^2$



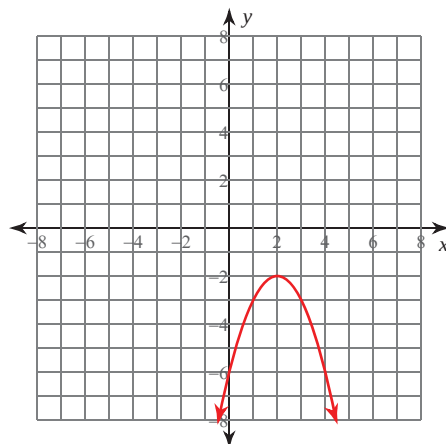
Vertex: $(0, -2)$
 Focus: $(-1, -2)$
 Axis of Sym.: $y = -2$
 Directrix: $x = 1$

3) $-\frac{1}{3}(x - 3) = (y + 5)^2$



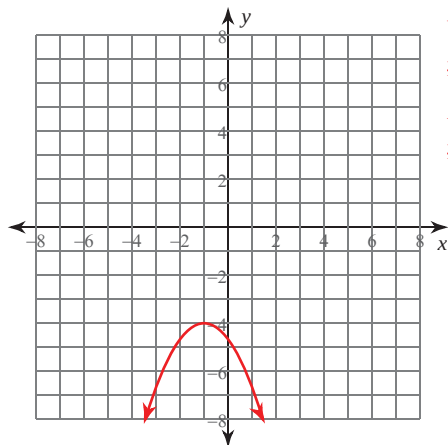
Vertex: $(3, -5)$
 Focus: $(\frac{35}{12}, -5)$
 Axis of Sym.: $y = -5$
 Directrix: $x = \frac{37}{12}$

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



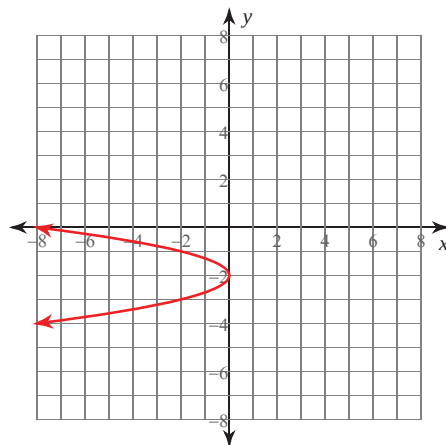
Vertex: $(2, -2)$
 Focus: $(2, \frac{9}{4})$
 Axis of Sym.: $x = 2$
 Directrix: $y = -\frac{7}{4}$

5) $3y + 4x = -2x^2 - 14$



Vertex: $(-1, -4)$
 Focus: $(-1, -\frac{35}{8})$
 Axis of Sym.: $x = -1$
 Directrix: $y = \frac{29}{8}$

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



Vertex: $(0, -2)$
 Focus: $(-\frac{1}{8}, -2)$
 Axis of Sym.: $y = -2$
 Directrix: $x = \frac{1}{8}$