

Assignment: Parabola

Date _____

Use the information provided to write the vertex form equation of each parabola.

1) $3y^2 + 36y = -x - 103$

2) $0 = -x^2 + 8 - y$

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

4) $x = 3y^2 - 60y + 291$

Identify the vertex, focus, and directrix of each.

5) $x = -(y + 10)^2 + 6$

6) $x = 6(y + 1)^2 + 9$

7) $y = (x - 9)^2 + 9$

8) $y = -3(x + 1)^2 + 7$

9) $y = x^2 - 20x + 98$

10) $x = -y^2 - 12y - 44$

11) $y = 12x^2 + 48x + 54$

12) $x = -\frac{1}{9}y^2 - 5$

Use the information provided to write the vertex form equation of each parabola.

13) Vertex: $(2, -7)$, Focus: $\left(\frac{23}{12}, -7\right)$

14) Vertex: $(-5, -4)$, Focus: $\left(-5, -\frac{17}{4}\right)$

15) Vertex: $(-5, -6)$, Directrix: $x = -\frac{19}{4}$

16) Vertex: $(2, 0)$, Directrix: $x = \frac{11}{4}$

Answers to Assignment: Parabola

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

5) Vertex: $(6, -10)$

Focus: $\left(\frac{23}{4}, -10\right)$

Directrix: $x = \frac{25}{4}$

9) Vertex: $(10, -2)$

Focus: $\left(10, -\frac{7}{4}\right)$

Directrix: $y = -\frac{9}{4}$

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

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

6) Vertex: $(9, -1)$

Focus: $\left(\frac{217}{24}, -1\right)$

Directrix: $x = \frac{215}{24}$

10) Vertex: $(-8, -6)$

Focus: $\left(-\frac{33}{4}, -6\right)$

Directrix: $x = -\frac{31}{4}$

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

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

7) Vertex: $(9, 9)$

Focus: $\left(9, \frac{37}{4}\right)$

Directrix: $y = \frac{35}{4}$

11) Vertex: $(-2, 6)$

Focus: $\left(-2, \frac{289}{48}\right)$

Directrix: $y = \frac{287}{48}$

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

4) $x = 3(y - 10)^2 - 9$

8) Vertex: $(-1, 7)$

Focus: $\left(-1, \frac{83}{12}\right)$

Directrix: $y = \frac{85}{12}$

12) Vertex: $(-5, 0)$

Focus: $\left(-\frac{29}{4}, 0\right)$

Directrix: $x = -\frac{11}{4}$

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

