Name_____

Assignment : Parabola

Date_____

Identify the vertex, focus, axis of symmetry, directrix, and x-intercept of each.

1) $x = 3y^2$

2) $x = \dfrac{1}{3}y^2$

Identify the vertex, focus, axis of symmetry, directrix, and y-intercept of each.

3) $y = x^2$

4) $y = -x^2$

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

6) $y = 3(x + 3)^2 + 6$

Identify the vertex, focus, axis of symmetry, directrix, and x-intercept of each.

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

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

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

9) Vertex: $(-4, 4)$, Focus: $\left(-4, \dfrac{159}{40}\right)$

10) Vertex: $(-8, 2)$, Focus: $\left(-8, \dfrac{15}{8}\right)$

11) Vertex: $(4, -2)$, Directrix: $y = -\dfrac{23}{12}$

12) Vertex: $(-1, -10)$, Directrix: $y = -\dfrac{119}{12}$

13) Focus: $\left(4, \dfrac{9}{2}\right)$, Directrix: $y = \dfrac{11}{2}$

14) Focus: $\left(7, \dfrac{19}{4}\right)$, Directrix: $y = \dfrac{21}{4}$

Answers to Assignment : Parabola

1) Vertex: $(0, 0)$
    Focus: $\left(\dfrac{1}{12}, 0\right)$
    Axis of Sym.: $y = 0$
    Directrix: $x = -\dfrac{1}{12}$
    x-int: 0

2) Vertex: $(0, 0)$
    Focus: $\left(\dfrac{3}{4}, 0\right)$
    Axis of Sym.: $y = 0$
    Directrix: $x = -\dfrac{3}{4}$
    x-int: 0

3) Vertex: $(0, 0)$
    Focus: $\left(0, \dfrac{1}{4}\right)$
    Axis of Sym.: $x = 0$
    Directrix: $y = -\dfrac{1}{4}$
    y-int: 0

4) Vertex: $(0, 0)$
    Focus: $\left(0, -\dfrac{1}{4}\right)$
    Axis of Sym.: $x = 0$
    Directrix: $y = \dfrac{1}{4}$
    y-int: 0

5) Vertex: $(7, 1)$
    Focus: $\left(7, \dfrac{5}{4}\right)$
    Axis of Sym.: $x = 7$
    Directrix: $y = \dfrac{3}{4}$
    y-int: 50

6) Vertex: $(-3, 6)$
    Focus: $\left(-3, \dfrac{73}{12}\right)$
    Axis of Sym.: $x = -3$
    Directrix: $y = \dfrac{71}{12}$
    y-int: 33

7) Vertex: $(8, 8)$
    Focus: $\left(\dfrac{33}{4}, 8\right)$
    Axis of Sym.: $y = 8$
    Directrix: $x = \dfrac{31}{4}$
    x-int: 72

8) Vertex: $(-3, 2)$
    Focus: $\left(-\dfrac{11}{4}, 2\right)$
    Axis of Sym.: $y = 2$
    Directrix: $x = -\dfrac{13}{4}$
    x-int: 1

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

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

11) $y = -3(x - 4)^2 - 2$

12) $y = -3(x + 1)^2 - 10$

13) $y = -\dfrac{1}{2}(x - 4)^2 + 5$

14) $y = -(x - 7)^2 + 5$