9-1 to 9-3 PRACTICE

**PreCalc** **Name:**_____

1.) Find the equation of the parabola described.

a. Focus (0, -1); Directrix the line y = 1

Equation: _____

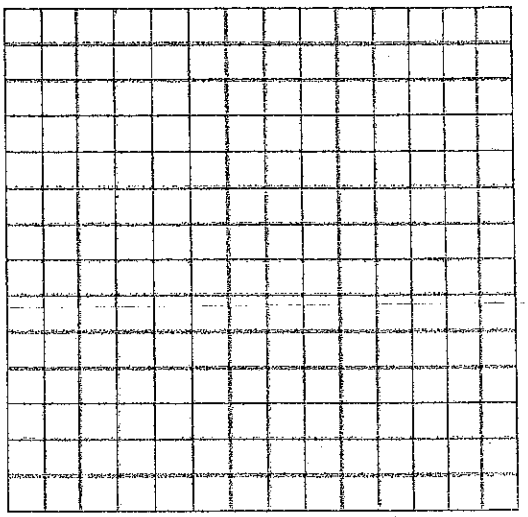
b. Vertex at (4, -2); Focus at (6, -2)

Equation: _____

2.) Rewrite the equation in the form $y = a(x-h)^2 + k$. Find the vertex, focus, and directrix of the parabola. Then graph the equation. $(x-2)^2 = 4(y-3)$

Equation:_____

Vertex:_____ Focus:_____ Directrix:_____



3.) A cable TV receiving dish is in the shape of a paraboloid of revolution. Find the location of the receiver, which is placed at the focus, if the dish is 6 feet across at its opening and 2 feet deep. Show work!

_____

4.) Find an equation for an ellipse with foci at $(0, \pm 2)$ and length of the major axis is 8.

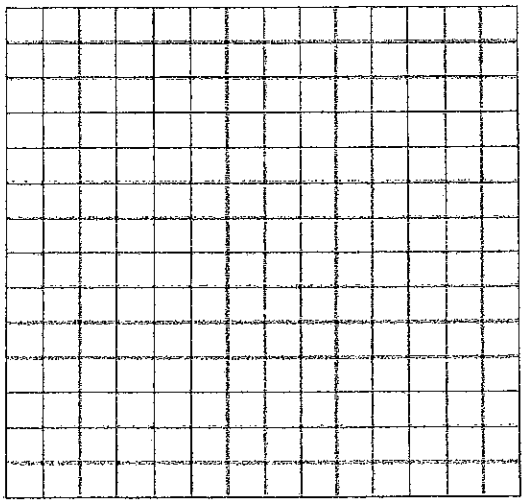
Equation: _____

5.) Find the center, foci and vertices of the ellipse. Then graph the ellipse. $x^2+9y^2+6x-18y+9=0$

Center: _____

Foci: _____

Vertices:_____



6.) Find an equation for an ellipse with center at (-3, 1), vertex at (-3, 3) and focus at (-3, 0).

Equation:_____

7.) A bridge is built in the shape of a parabolic arch. The bridge has a span of 60 feet and a maximum height of 20 feet. Find the height of the arch at distances of 5, 10, and 20 feet from the center. Show work!

height at 5 ft:_____

height at 10 ft:_____

height at 20 ft:_____

8.) A bridge is built in the shape of a semi-elliptical arch. The bridge has a span of 60 feet and a maximum height of 20 feet. Find the height of the arch at distances of 5, 10, and 20 feet from the center. Show work!

height at 5 ft:_____

height at 10 ft:_____

height at 20 ft:_____