Using the given information, write the standard equation of the parabola.

1.) Vertex: $(0, 0)$, directrix: $y = 5$

2.) Vertex: $(0, 0)$, focus: $(2, 0)$

Graph the equation and identify the focus and directrix of the parabola.

3.) $y^2 = 8x$

4.) $x^2 = -12y$
Given the following graph, write the standard equation of the parabola.

5.)

6.)

7.) The cross section of a television dish is a parabola. The receiver is the device that receives the signal for the television dish. The receiver is at the focus of the parabolic dish. If the receiver is 4 feet away from the vertex (0,0), find the equation for the cross section of the dish.

8.) The filament of a light bulb is a thin wire that glows when electricity passes through it. The filament of a car headlight is at the focus of a parabolic reflector, which sends light out in a straight beam. Given that the filament is 1.5 inches for the vertex (0,0), find the equation for the cross section of the reflector.