

Circles

For #1-3, find the standard form of the equation of the circle with the given characteristics.

1. Center at origin; radius: 4
2. Center: (3, 7); point on circle: (1, 0)
3. Center: (5, -6); diameter: $4\sqrt{3}$

For #4-5, write the equation of the circle in standard form. Then identify its center and radius.

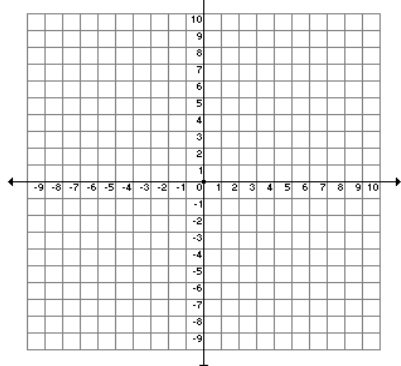
4. $x^2 + y^2 - 2x + 6y + 9 = 0$

5. $9x^2 + 9y^2 + 54x - 36y + 17 = 0$

Parabolas

For #6-9, find the vertex, focus, and directrix for each parabola. Then draw a graph.

6. $x^2 = 8y$

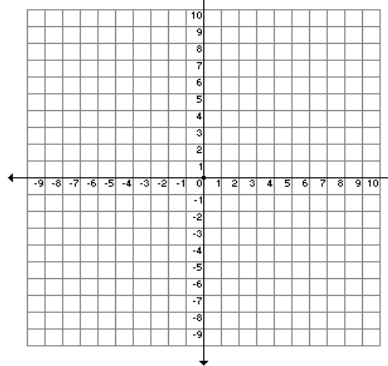


V: (,)

F: (,)

Dir: _____

7. $y^2 = -4x$

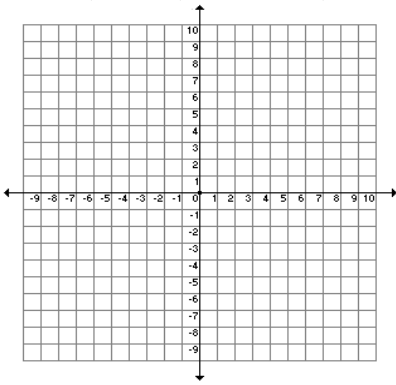


V: (,)

F: (,)

Dir: _____

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



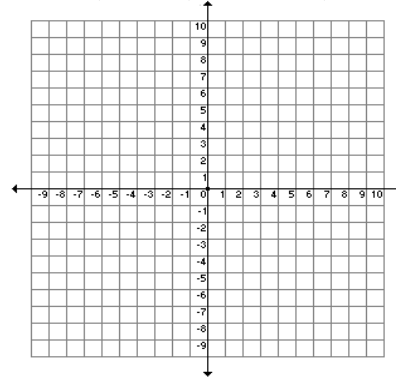
V: (,)

F: (,)

Dir: _____

Direction of opening:

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



V: (,)

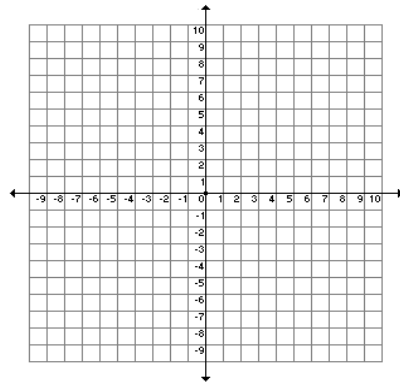
F: (,)

Dir: _____

Direction of opening:

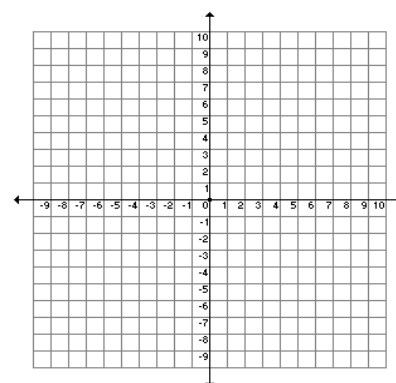
For #10-13, find an equation of a parabola using the given coordinates.

10. Focus $(4, 0)$; directrix $x = -4$



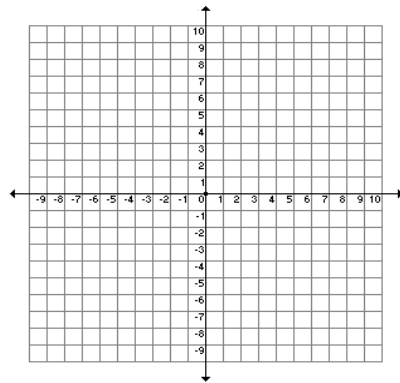
Equation: _____

11. Focus $(0, 3\sqrt{3})$; directrix $y = -3\sqrt{3}$



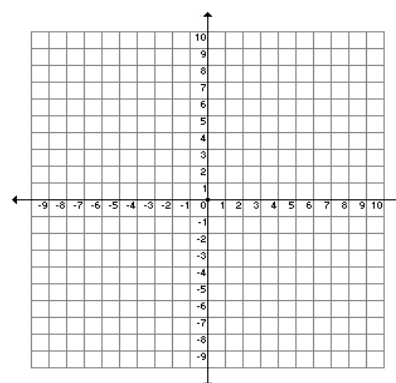
Equation: _____

12. Focus $(3, 4)$; vertex $(3, 7)$



Equation: _____

13. Focus $(-2, -1)$; vertex $(0, -1)$



Equation: _____