In each of the following Exercises 1 to 6, find the coordinates of the focus, axis of the parabola, the equation of the directrix and the length of the latus rectum.

1. $y^2 = 12x$ **2.** $x^2 = 6y$ **3.** $y^2 = -8x$

1. F $(3, 0)$, axis - x - axis, directrix $x = -3$, length of the Latus rectum $= 12$

2. F $(0, \dfrac{3}{2})$, axis - y - axis, directrix $y = -\dfrac{3}{2}$, length of the Latus rectum $= 6$

3. F $(-2, 0)$, axis - x - axis, directrix $x = 2$, length of the Latus rectum $= 8$

4. $x^2 = -16y$

5. $y^2 = 10x$

6. $x^2 = -9y$

4. $F(0, -4)$, axis - y - axis, directrix $y = 4$, length of the Latus rectum $= 16$

5. $F\left(\dfrac{5}{2}, 0\right)$ axis - x - axis, directrix $x = -\dfrac{5}{2}$, length of the Latus rectum $= 10$

6. $F\left(0, \dfrac{-9}{4}\right)$, axis - y - axis, directrix $y = \dfrac{9}{4}$, length of the Latus rectum $= 9$

In each of the Exercises 7 to 12, find the equation of the parabola that satisfies the given conditions:

7. Focus $(6,0)$; directrix $x = -6$

8. Focus $(0,-3)$; directrix $y = 3$

9. Vertex (0,0); focus (3,0)

10. Vertex (0,0); focus (–2,0)

11. Vertex $(0,0)$ passing through $(2,3)$ and axis is along x-axis.

12. Vertex (0,0), passing through (5,2) and symmetric with respect to y-axis.

7. $y^2 = 24x$

8. $x^2 = -12y$

9. $y^2 = 12x$

10. $y^2 = -8x$

11. $2y^2 = 9x$

12. $2x^2 = 25y$