# CONIC SECTIONS

## HYPERBOLA

**Find the coordinates of the foci and the vertices, the eccentricity and the length of the latus rectum of the hyperbolas.**

**Q.1** $\frac{x^2}{16} - \frac{y^2}{9} = 1$

**Q.2** $\frac{y^2}{9} - \frac{x^2}{27} = 1$

**Q.3** $9y^2 - 4x^2 = 36$

**Find the equations of the hyperbola satisfying the given conditions.**

**Q.4** Vertices $(\pm 2, 0)$, foci $(\pm 3, 0)$

**Q.5** Foci $(\pm 3\sqrt{5}, 0)$, the latus rectum is of length 8.

**Q.6** Vertices $(0, \pm 3)$, foci $(0, \pm 5)$

## ANSWER KEY

**1.** Foci $(\pm 5, 0)$, Vertices $(\pm 4, 0)$; $e = \frac{5}{4}$, Latus rectum $= \frac{9}{2}$

**2.** Foci $(0 \pm 6)$, Vertices $(0, \pm 3)$; $e = 2$; Latus rectum $= 18$

**3.** Foci $(0, \pm \sqrt{13})$, Vertices $(0, \pm 2)$; $e = \frac{\sqrt{13}}{2}$, Latus rectum $= 9$

**4.** $\frac{x^2}{4} - \frac{y^2}{5} = 1$

**5.** $\frac{x^2}{25} - \frac{y^2}{20} = 1$

**6.** $\frac{y^2}{9} - \frac{x^2}{16} = 1$