

Classroom Voting Questions: Precalculus

Conic Sections

1. Find an equation of a parabola that has vertex at the origin, opens right, and passes through $(9, -2)$.

(a) $y = \frac{2}{81}x^2$

(b) $y = -\frac{2}{81}x^2$

(c) $x = \frac{9}{4}y^2$

(d) $x = -\frac{9}{4}y^2$

2. Find an equation of the parabola that has vertex $(2, 1)$ and directrix $y = 6$.

(a) $(x - 2)^2 = 20(y - 1)$

(b) $(x - 2)^2 = -20(y - 1)$

(c) $(y - 1)^2 = 20(x - 2)$

(d) $(y - 1)^2 = -20(x - 2)$

3. Find the vertices and the endpoints of the minor axis for the ellipse given by the equation $9x^2 + 4y^2 = 16$.

(a) vertices: $(2, 0)$ and $(-2, 0)$; endpoints of minor axis: $(0, \frac{4}{3})$ and $(0, -\frac{4}{3})$

(b) vertices: $(0, 2)$ and $(0, -2)$; endpoints of minor axis: $(\frac{4}{3}, 0)$ and $(-\frac{4}{3}, 0)$

(c) vertices: $(2, 0)$ and $(-2, 0)$; endpoints of minor axis: $(0, \frac{3}{4})$ and $(0, -\frac{3}{4})$

(d) vertices: $(0, 2)$ and $(0, -2)$; endpoints of minor axis: $(\frac{3}{4}, 0)$ and $(-\frac{3}{4}, 0)$

4. Find an equation for the ellipse that has vertices at $(0, 3)$ and $(0, -3)$ and foci at $(0, 2)$ and $(0, -2)$.

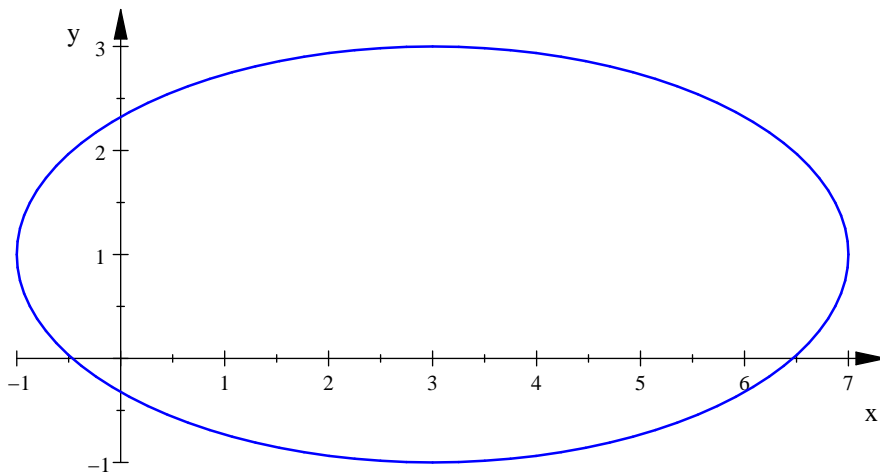
(a) $\frac{x^2}{4} + \frac{y^2}{9} = 1$

(b) $\frac{x^2}{9} + \frac{y^2}{4} = 1$

(c) $\frac{x^2}{5} + \frac{y^2}{9} = 1$

(d) $\frac{x^2}{9} + \frac{y^2}{5} = 1$

5. What is the equation of the ellipse graphed below?



(a) $\frac{(x + 3)^2}{16} + \frac{(y + 1)^2}{4} = 1$

(b) $\frac{(x + 3)^2}{64} + \frac{(y + 1)^2}{16} = 1$

(c) $\frac{(x - 3)^2}{16} + \frac{(y - 1)^2}{4} = 1$

(d) $\frac{(x - 3)^2}{64} + \frac{(y - 1)^2}{16} = 1$

6. Find equations for the asymptotes of the hyperbola given by the equation $y^2 - \frac{x^2}{2} = 4$.

(a) $y = \pm \frac{1}{2}x$

(b) $y = \pm \frac{1}{\sqrt{2}}x$

(c) $y = \pm \sqrt{2}x$

(d) $y = \pm 2x$

7. Find the center of the hyperbola given by the equation $4x^2 - 9y^2 + 16x + 18y = 29$.

- (a) $(2, 1)$
- (b) $(2, -1)$
- (c) $(-2, 1)$
- (d) $(-2, -1)$