

# 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  $(0, -2)$ .

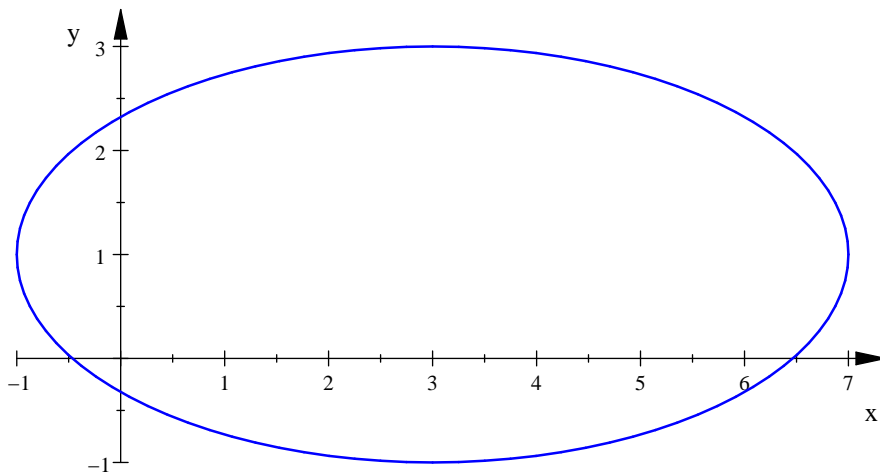
(a)  $\frac{x^2}{4} + \frac{y^2}{9} = 1$

(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)  $(-2, -1)$