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) $y = \dfrac{2}{81}x^2$

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

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

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

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 $(0, -2)$.

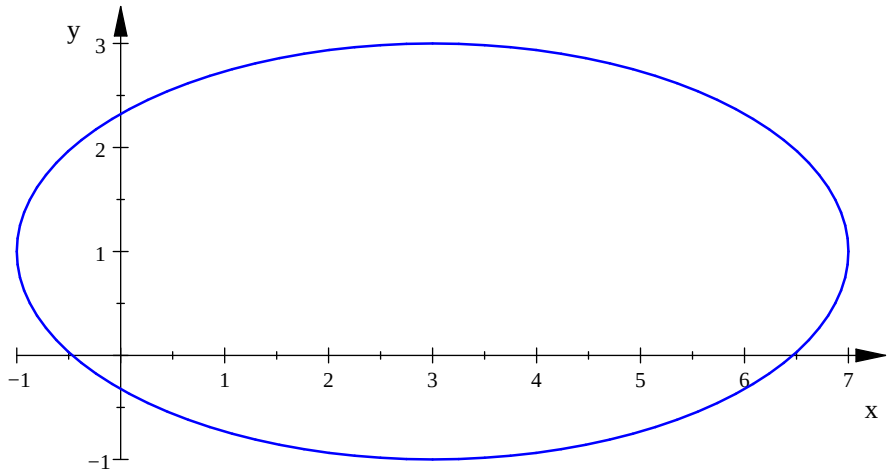
   (a) $\dfrac{x^2}{4} + \dfrac{y^2}{9} = 1$

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

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

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

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



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

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

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

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

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

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

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

(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) $(-2, -1)$