

## 12.3: (Hyperbolas)

The equation of one of the asymptote of the hyperbola with vertices at  $(\pm 2, 0)$  and eccentricity  $e = 2$ , is

A)  $y = -\sqrt{3}x$

B)  $y = \frac{\sqrt{3}}{3}x$

C)  $y = -\frac{\sqrt{3}}{2}x$

D)  $y = \frac{2\sqrt{3}}{3}x$

E)  $y = -\frac{1}{2}x$

The equation  
of a Hyperbola.

The equation of one of the asymptotes of the hyperbola  $9x^2 - 4y^2 - 18x + 24y - 63 = 0$ , is

A)  $3x + 2y - 9 = 0$

B)  $3x - 2y - 3 = 0$

C)  $3x + 2y - 3 = 0$

D)  $2x - 3y + 7 = 0$

E)  $2x + 3y - 7 = 0$

The equation  
of a Hyperbola.

One of the **foci** of the hyperbola with vertices at  $(9, -2)$  and  $(-7, -2)$ , and eccentricity  $e = \frac{5}{4}$ , is

- (A)  $(-9, -2)$
- (B)  $(-4, -2)$
- (C)  $(-11, -2)$
- (D)  $(6, -2)$
- (E)  $(12, -2)$

The equation of a Hyperbola.

Let  $P$  be any point on the hyperbola  $81x^2 + 162x - 4y^2 + 16y + 29 = 0$  with foci  $F_1$  and  $F_2$ . If  $PF_1$  and  $PF_2$  are respectively the distances from  $P$  to  $F_1$  and from  $P$  to  $F_2$ , then  $|PF_2 - PF_1| =$

- (A) 8
- (B) 3
- (C)  $\frac{2}{3}$
- (D)  $\frac{4}{3}$
- (E) 6

The equation of a Hyperbola.

A hyperbola with center  $(2, 7)$  is passing through the point  $(4, 5)$  and has one asymptote with slope 2 and its transverse axis is horizontal. Its equation is

- (A)  $4x^2 - 16x - y^2 + 14y - 45 = 0$
- (B)  $4x^2 + 16x - y^2 + 14y + 81 = 0$
- (C)  $4x^2 - 8x - y^2 + 14y - 54 = 0$
- (D)  $4x^2 - 4x - y^2 + 6y - 144 = 0$
- (E)  $4y^2 + 8y - x^2 + 14x - 54 = 0$

The equation of a Hyperbola.

The asymptote with positive slope of the hyperbola

$$x^2 - 25y^2 - 2x - 100y - 124 = 0 \text{ is}$$

A)  $5y - x + 11 = 0$

B)  $5x - y - 7 = 0$

C)  $5y - x - 7 = 0$

D)  $5x - y + 7 = 0$

E)  $5x - y + 6 = 0$

The equation of a Hyperbola.

The eccentricity of the hyperbola given by  $9y^2 - 36x^2 - 4 = 0$  is

(a)  $\frac{\sqrt{5}}{2}$

(b)  $\frac{\sqrt{3}}{2}$

(c)  $\frac{\sqrt{17}}{4}$

(d)  $\frac{1}{2}$

(e)  $\frac{3}{2}$

The equation of a Hyperbola.

The equation of the hyperbola with center  $(1, -2)$ , one focus at  $(-2, -2)$  and one vertex at  $(-1, -2)$ , is

A)  $5(x - 1)^2 - 4(y + 2)^2 = 20$

B)  $4(y + 2)^2 - 5(x - 1)^2 = 20$

C)  $4(y - 2)^2 - 5(x + 1)^2 = 20$

D)  $4(x - 1)^2 - 5(y + 2)^2 = 20$

E)  $5(x + 1)^2 - 4(y - 2)^2 = 20$

The equation of a Hyperbola.