12.3: (Hyperbolas)

The equation of one of the asymptotes 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 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) $2x + 3y - 7 = 0$

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) $(12, -2)$

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

A hyperbola with center $(2,7)$ is passing through the point $(4,5)$ and has one asymptote with slope 2 and its tranverse 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 asymptote with positive slope of the hyperbola $x^2 - 25y^2 - 2x - 100y - 124 = 0$ 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 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 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) $5(x+1)^2 - 4(y-2)^2 = 20$