

1. Use this Hyperbola: $\frac{x^2}{196} - \frac{y^2}{225} = 1$ Find the following:

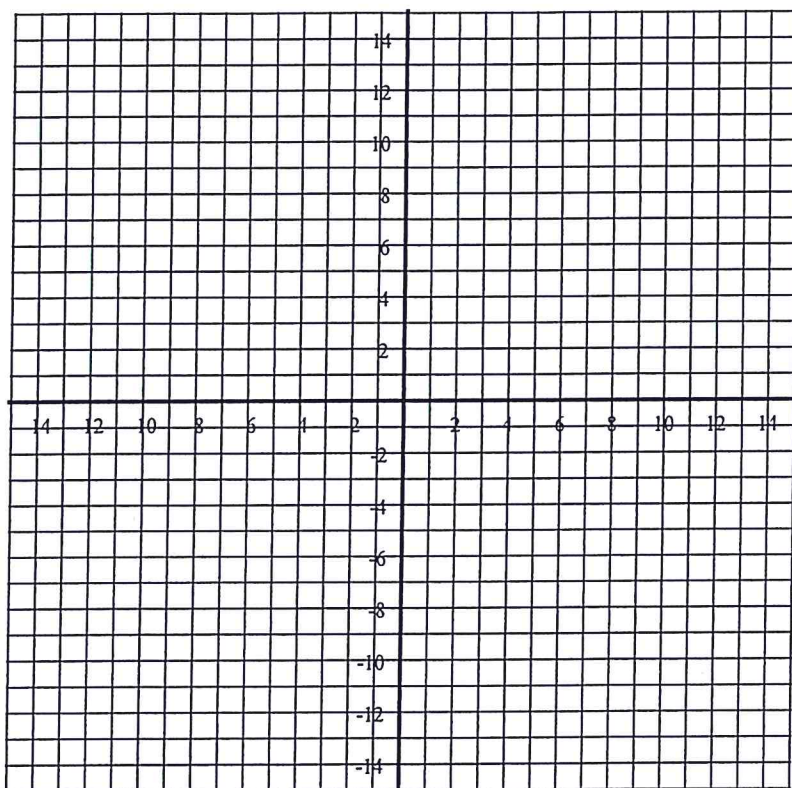
a) Coordinates of the Vertices:

b) Coordinates of the Foci:

c) The slopes of the Asymptotes:

d) Length of the Transverse Axis:

2. Graph this Hyperbola showing the Vertices and Asymptotes: $\frac{y^2}{16} - \frac{x^2}{49} = 1$



3. How many numbers between 200 and 400 meet one or both of the conditions given in the two statements below?

Statement 1: The number begins with 3

Statement 2: The number ends with 3

A. 20

B. 60

C. 100

D. 110

E. 120

1. Use this Hyperbola: $\frac{x^2}{196} - \frac{y^2}{225} = 1$ Find the following:

a) Coordinates of the Vertices:

$$(\pm 14, 0)$$

b) Coordinates of the Foci:

$$(\pm \sqrt{421}, 0)$$

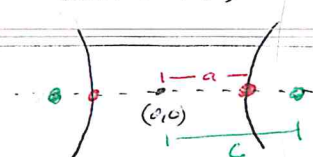
c) The slopes of the Asymptotes:

$$m = \pm \frac{15}{14}$$

d) Length of the Transverse Axis:

$$2a = 2(14) = 28$$

branches open in the x-direction
center (0,0)



$$a^2 = 196$$

$$a = 14$$

$$b^2 = 225$$

$$b = 15$$

$$c^2 = 196 + 225$$

$$c^2 = 421$$

$$c = \sqrt{421}$$

2. Graph this Hyperbola showing the Vertices and Asymptotes: $\frac{y^2}{16} - \frac{x^2}{49} = 1$

center (0,0)

branches open in y-direction

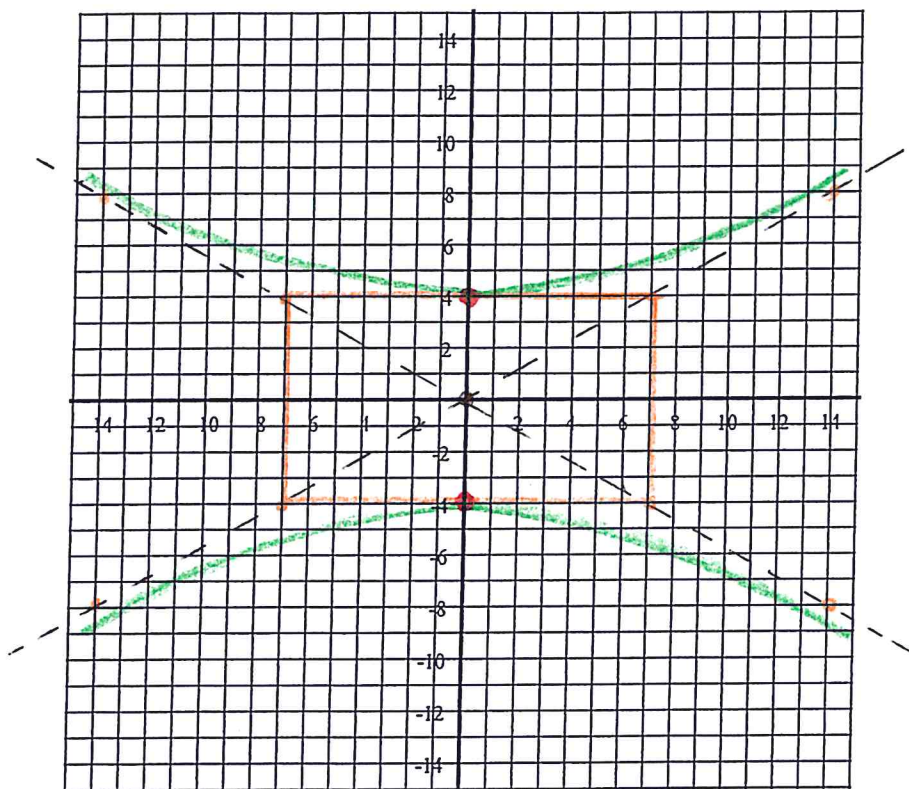
$$a^2 = 16 \quad a = 4$$

vertices (0, ±4)

$$b^2 = 49 \quad b = 7$$

slopes of asymptotes

$$\pm \frac{4}{7}$$



3. How many numbers between 200 and 400 meet one or both of the conditions given in the two statements below?

Statement 1: The number begins with 3

Statement 2: The number ends with 3

A. 20

B. 60

C. 100

D. 110

E. 120

203
213
223
?
293

} 10 #s

all the #s in the 300s

} 100 #s

$$10 + 100 = 110 \text{ TOTAL}$$