

Math Sheet

Name _____ Score _____ / 28 Teacher _____ Date _____

Properties of Ellipses

Identify the requested exact properties of each ellipse.

1. $\frac{x^2}{121} + \frac{(y - 4)^2}{36} = 1$

Center: _____

Vertices: _____

Co-vertices: _____

Foci: _____

Major axis length: _____

Minor axis length: _____

Eccentricity: _____

2. $\frac{(x - 6)^2}{9} + \frac{y^2}{100} = 1$

Center: _____

Vertices: _____

Co-vertices: _____

Foci: _____

Major axis length: _____

Minor axis length: _____

Eccentricity: _____

3. $\frac{(x + 1)^2}{4} + \frac{(y + 1)^2}{1} = 1$

Center: _____

Vertices: _____

Co-vertices: _____

Foci: _____

Major axis length: _____

Minor axis length: _____

Eccentricity: _____

4. $\frac{(x + 2)^2}{1} + \frac{(y + 5)^2}{9} = 1$

Center: _____

Vertices: _____

Co-vertices: _____

Foci: _____

Major axis length: _____

Minor axis length: _____

Eccentricity: _____

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Properties of Ellipses

Answer Key

Identify the requested exact properties of each ellipse.

1.
$$\frac{x^2}{121} + \frac{(y-4)^2}{36} = 1$$

Center: (0,4)

Vertices: (11,4),(-11,4)

Co-vertices: (0,10),(0,-2)

Foci: ($\sqrt{85}$,4),(- $\sqrt{85}$,4)

Major axis length: 22

Minor axis length: 12

Eccentricity: $\frac{1}{11} \cdot \sqrt{85}$

2.
$$\frac{(x-6)^2}{9} + \frac{y^2}{100} = 1$$

Center: (6,0)

Vertices: (6,10),(6,-10)

Co-vertices: (9,0),(3,0)

Foci: (6, $\sqrt{91}$), (6,- $\sqrt{91}$)

Major axis length: 20

Minor axis length: 6

Eccentricity: $\frac{1}{10} \cdot \sqrt{91}$

3.
$$\frac{(x+1)^2}{4} + \frac{(y+1)^2}{1} = 1$$

Center: (-1,-1)

Vertices: (1,-1),(-3,-1)

Co-vertices: (-1,0),(-1,-2)

Foci: (-1+ $\sqrt{3}$, -1), (-1- $\sqrt{3}$, -1)

Major axis length: 4

Minor axis length: 2

Eccentricity: $\frac{1}{2} \cdot \sqrt{3}$

4.
$$\frac{(x+2)^2}{1} + \frac{(y+5)^2}{9} = 1$$

Center: (-2,-5)

Vertices: (-2,-2),(-2,-8)

Co-vertices: (-1,-5),(-3,-5)

Foci: (-2,-5+2 $\cdot\sqrt{2}$), (-2,-5-2 $\cdot\sqrt{2}$)

Major axis length: 6

Minor axis length: 2

Eccentricity: $\frac{2}{3} \cdot \sqrt{2}$