Activity 10.2: Ellipses & Hyperbolas

A

Name: _____ Partner's name: _____ Date: _____

Directions: Answer each question about the conic section. Problem 4 uses a graph. Graphs are drawn accurately.
Work alone, then compare after each problem. If answers differ, find the mistake together.

1 Find the length of the major axis of $\frac{x^2}{25} + \frac{y^2}{9} = 1$.

Answer: _____ Match? ☐ Yes ☐ No

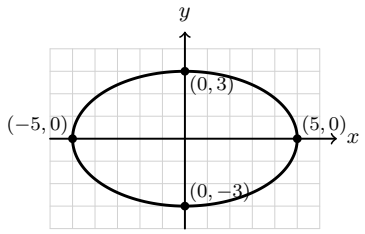
2 Find the foci of $\frac{x^2}{25} + \frac{y^2}{9} = 1$.

Answer: _____ Match? ☐ Yes ☐ No

3 Find the center of $\frac{(x-1)^2}{16} + \frac{(y+2)^2}{4} = 1$.

Answer: _____ Match? ☐ Yes ☐ No

4 Write the equation of the ellipse shown (center at the origin).



Answer: _____ Match? ☐ Yes ☐ No

5 Find the asymptotes of $\frac{x^2}{9} - \frac{y^2}{16} = 1$.

Answer: _____ Match? ☐ Yes ☐ No

6 Find the vertices of $\frac{x^2}{9} - \frac{y^2}{16} = 1$.

Answer: _____ Match? ☐ Yes ☐ No

7 Is $x^2 - y^2 = 9$ a circle, parabola, ellipse, or hyperbola?

Answer: _____ Match? ☐ Yes ☐ No

8 Find the eccentricity $e = \frac{c}{a}$ of $\frac{x^2}{25} + \frac{y^2}{9} = 1$.

Answer: _____ Match? ☐ Yes ☐ No

UNIT 10 • CONIC SECTIONS

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B

Name: _____ Partner's name: _____ Date: _____

Directions: Answer each question about the conic section. Problem 4 uses a graph. Graphs are drawn accurately.
Work alone, then compare after each problem. If answers differ, find the mistake together.

1

Find the length of the major axis of $9x^2 + 25y^2 = 225$.

Answer: _____ Match? ☐ Yes ☐ No

2

Find the foci of $\frac{x^2}{20} + \frac{y^2}{4} = 1$.

Answer: _____ Match? ☐ Yes ☐ No

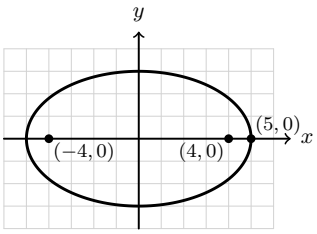
3

Find the center of $4(x-1)^2 + 16(y+2)^2 = 64$.

Answer: _____ Match? ☐ Yes ☐ No

4

Write the equation of the ellipse shown (center at the origin).



Answer: _____ Match? ☐ Yes ☐ No

5

Find the asymptotes of $16x^2 - 9y^2 = 144$.

Answer: _____ Match? ☐ Yes ☐ No

6

Find the vertices of $\frac{x^2}{9} - \frac{y^2}{25} = 1$.

Answer: _____ Match? ☐ Yes ☐ No

7

Is $2x^2 - 2y^2 = 18$ a circle, parabola, ellipse, or hyperbola?

Answer: _____ Match? ☐ Yes ☐ No

8

An ellipse has semi-major axis $a = 10$ and focal distance $c = 8$. Find the eccentricity $e = \frac{c}{a}$.

Answer: _____ Match? ☐ Yes ☐ No