

Math Sheet

Name _____ Score _____ / 10 Teacher _____ Date _____

Writing Equations of Ellipses

Use the given information to write each ellipse in standard form.

1. Vertices: $(6, -7)$, $(-10, -7)$
Co-vertices: $(-2, -2)$, $(-2, -12)$
Standard equation:

2. Vertices: $(-5, 11)$, $(-5, -9)$
Foci: $(-5, 1 + 5\sqrt{3})$, $(-5, 1 - 5\sqrt{3})$
Standard equation:

3. Foci: $(7 + 2\sqrt{5}, -1)$, $(7 - 2\sqrt{5}, -1)$
Co-vertices: $(7, 3)$, $(7, -5)$
Standard equation:

4. Foci: $(-2, -4 + 2\sqrt{2})$, $(-2, -4 - 2\sqrt{2})$
Major endpoints: $(-2, -1)$, $(-2, -7)$
Standard equation:

5. Foci: $(1 + 2\sqrt{6}, 1)$, $(1 - 2\sqrt{6}, 1)$
Minor endpoints: $(1, 2)$, $(1, 0)$
Standard equation:

6. Center: $(3, -1)$
Vertex: $(3, 6)$
Focus: $(3, -1 - 1\sqrt{13})$
Standard equation:

7. Center: $(5, 5)$
Vertex: $(9, 5)$
Co-vertex: $(5, 3)$
Standard equation:

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Use the given information to write each ellipse in standard form.

8. Center: (7,5)
Co-vertex: (10,5)
Focus: $(7, 5 - 2\sqrt{10})$
Standard equation:

9. Center: (1,-4)
Focus: $(1 + 2\sqrt{5}, -4)$
Horizontal width: 12
Standard equation:

10. Vertices: (-7 ,12),(-7 , -10)
Co-vertices: (-3 ,1),(-11 ,1)
Standard equation:

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Writing Equations of Ellipses

Answer Key

Use the given information to write each ellipse in standard form.

1. Vertices: $(6, -7)$, $(-10, -7)$
Co-vertices: $(-2, -2)$, $(-2, -12)$
Answer: $\frac{(x+2)^2}{64} + \frac{(y+7)^2}{25} = 1$

2. Vertices: $(-5, 11)$, $(-5, -9)$
Foci: $(-5, 1+5\sqrt{3})$, $(-5, 1-5\sqrt{3})$
Answer: $\frac{(x+5)^2}{25} + \frac{(y-1)^2}{100} = 1$

3. Foci: $(7+2\sqrt{5}, -1)$, $(7-2\sqrt{5}, -1)$
Co-vertices: $(7, 3)$, $(7, -5)$
Answer: $\frac{(x-7)^2}{36} + \frac{(y+1)^2}{16} = 1$

4. Foci: $(-2, -4+2\sqrt{2})$, $(-2, -4-2\sqrt{2})$
Major endpoints: $(-2, -1)$, $(-2, -7)$
Answer: $\frac{(x+2)^2}{1} + \frac{(y+4)^2}{9} = 1$

5. Foci: $(1+2\sqrt{6}, 1)$, $(1-2\sqrt{6}, 1)$
Minor endpoints: $(1, 2)$, $(1, 0)$
Answer: $\frac{(x-1)^2}{25} + \frac{(y-1)^2}{1} = 1$

6. Center: $(3, -1)$
Vertex: $(3, 6)$
Focus: $(3, -1-1\sqrt{13})$
Answer: $\frac{(x-3)^2}{36} + \frac{(y+1)^2}{49} = 1$

7. Center: $(5, 5)$
Vertex: $(9, 5)$
Co-vertex: $(5, 3)$
Answer: $\frac{(x-5)^2}{16} + \frac{(y-5)^2}{4} = 1$

8. Center: $(7, 5)$
Co-vertex: $(10, 5)$
Focus: $(7, 5-2\sqrt{10})$
Answer: $\frac{(x-7)^2}{9} + \frac{(y-5)^2}{49} = 1$

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Writing Equations of Ellipses

Answer Key

Use the given information to write each ellipse in standard form.

9. Center: (1,-4)
Focus: $(1 + 2\sqrt{5}, -4)$
Horizontal width: 12
Answer: $\frac{(x - 1)^2}{36} + \frac{(y + 4)^2}{16} = 1$

10. Vertices: $(-7, 12), (-7, -10)$
Co-vertices: $(-3, 1), (-11, 1)$
Answer: $\frac{(x + 7)^2}{16} + \frac{(y - 1)^2}{121} = 1$