

Name _____

PCH - Circles/Ellipses Worksheet

Date _____

Use the information provided to write the standard form equation of each circle.

1) Center: $(10, -5)$
Radius: 5

2) Center: $(11, 7)$
Radius: $\sqrt{38}$

3) Center: $(10, 0)$
Radius: 8

4) Center: $(-7, 3)$
Radius: $6\sqrt{2}$

5) Center: $(14, -12)$
Point on Circle: $(18, -14)$

6) Center: $(-14, 1)$
Point on Circle: $(-13, 1)$

7) Ends of a diameter: (4, 8) and (-8, 14)

8) Ends of a diameter: (9, 18) and (11, 0)

Identify the CENTER, VERTICES, CO-VERTICES, FOCI, LENGTH OF MAJOR AND MINOR AXIS and the ECCENTRICITY of each.

The eccentricity of an ellipse is a measure of how nearly circular the ellipse. Eccentricity is found by the following formula $e = c/a$ where c is the distance from the center to the *focus of the ellipse* a is the distance from the center to a *vertex*.

The special case of a circle's eccentricity

A circle is a special case of an ellipse. Analogous to the fact that a square is a kind of rectangle, a circle is a special case of an ellipse. In terms of the eccentricity, a circle is an ellipse in which the eccentricity is zero.

$$9) \frac{(x-2)^2}{49} + \frac{(y+10)^2}{64} = 1$$

$$10) \frac{(x-2)^2}{81} + \frac{(y-7)^2}{49} = 1$$

$$11) \frac{\left(x + \frac{17}{2}\right)^2}{144} + \frac{(y + 10)^2}{81} = 1$$

Plot the CENTER and RADIUS of each. Then sketch the graph.

$$12) (x - 4)^2 + (y - 1)^2 = 5$$

$$13) x^2 + (y - 3)^2 = 9$$

$$14) x^2 + y^2 = 30$$

$$15) x^2 + (y + 2)^2 = 4$$

Sketch the graph. Plot the CENTER, FOCI, VERTICES and CO-VERTICES.

$$16) \frac{(x-2)^2}{4} + \frac{y^2}{49} = 1$$

$$17) \frac{(x-1)^2}{36} + \frac{(y+2)^2}{9} = 1$$

$$18) \frac{x^2}{30} + \frac{(y+2)^2}{10} = 1$$

$$19) (x-2)^2 + \frac{(y-4)^2}{9} = 1$$