

## hw-12-Circles

Due: 12/13/2015 at 06:00am EST.

Students will be able to:

- Determine Equation of a Circle Using Diameter and Symmetry
- Determine Equation of a Circle Using Center and Point
- Determine Standard Form of a Circle by Completing The Square
- Determine Center and Radius of a Circle Using Standard Form

**Functions and symbols that WeBWorK understands.**

**Links to some useful WeBWorK pages for students**

1. (1 pt) Find the equation of the circle whose diameter has endpoints  $(-8, 10)$  and  $(7, -1)$ . Write it in the form

$$(x-h)^2 + (y-k)^2 = r^2$$

and identify  $h$ ,  $k$ , and  $r$ .

$$h = \underline{\hspace{2cm}}$$

$$k = \underline{\hspace{2cm}}$$

$$r = \underline{\hspace{2cm}}$$

2. (1 pt) Find the equation of the circle that has center  $(-2, -5)$  and is tangent to the  $y$ -axis. Write it in the form

$$(x-h)^2 + (y-k)^2 = r^2$$

and identify  $h$ ,  $k$ , and  $r$ .

$$h = \underline{\hspace{2cm}}$$

$$k = \underline{\hspace{2cm}}$$

$$r = \underline{\hspace{2cm}}$$

3. (1 pt) (a) Find the equation of the circle whose diameter has endpoints  $(-9, -10)$  and  $(5, -9)$ . Write it in the form

$$(x-h)^2 + (y-k)^2 = r^2$$

and identify  $h$ ,  $k$ , and  $r$ .

$$h = \underline{\hspace{2cm}}$$

$$k = \underline{\hspace{2cm}}$$

$$r = \underline{\hspace{2cm}}$$

(b) Find the equation of the circle that has center  $(-1, 4)$  and is tangent to the  $y$ -axis. Write it in the form

$$(x-h)^2 + (y-k)^2 = r^2$$

and identify  $h$ ,  $k$ , and  $r$ .

$$h = \underline{\hspace{2cm}}$$

$$k = \underline{\hspace{2cm}}$$

$$r = \underline{\hspace{2cm}}$$

4. (1 pt) Find the standard form for the equation of a circle  $(x-h)^2 + (y-k)^2 = r^2$  with a diameter that has endpoints of  $(0, -3)$  and  $(10, -7)$ .

$$h = \underline{\hspace{2cm}}$$

$$k = \underline{\hspace{2cm}}$$

$$r^2 = \underline{\hspace{2cm}}$$

5. (1 pt) Find the center  $(h, k)$  and the radius  $r$  of the circle

$$5x^2 - 2x + 5y^2 - 6y - 4 = 0.$$

$$h = \underline{\hspace{2cm}}$$

$$k = \underline{\hspace{2cm}}$$

$$r = \underline{\hspace{2cm}}$$

6. (1 pt) Find the standard form for the equation of a circle

$$(x-h)^2 + (y-k)^2 = r^2$$

with a diameter that has endpoints  $(-10, 5)$  and  $(3, -10)$ .

$$h = \underline{\hspace{2cm}}$$

$$k = \underline{\hspace{2cm}}$$

$$r = \underline{\hspace{2cm}}$$

7. (1 pt) Find an equation of the circle with center  $(10, -20)$  and radius 6 in the form of

$$(x-A)^2 + (y-B)^2 = C^2$$

where  $A$ ,  $B$ , and  $C$  are constants. Then

$$A = \underline{\hspace{2cm}}$$

$$B = \underline{\hspace{2cm}}$$

$$C = \underline{\hspace{2cm}}$$

8. (1 pt) Find an equation of the circle with center at  $(-3, 7)$  and passing through  $(5, -1)$  in the form of  $(x-A)^2 + (y-B)^2 = C$  where  $A, B, C$  are constants. Then

$$A \text{ is : } \underline{\hspace{2cm}}$$

$$B \text{ is : } \underline{\hspace{2cm}}$$

$$C \text{ is : } \underline{\hspace{2cm}}$$

9. (1 pt) Find an equation of the circle with center at  $(6, 6)$  that is tangent to the  $y$ -axis in the form of  $(x-A)^2 + (y-B)^2 = C$  where  $A, B, C$  are constants. Then

$$A \text{ is : } \underline{\hspace{2cm}}$$

$$B \text{ is : } \underline{\hspace{2cm}}$$

$$C \text{ is : } \underline{\hspace{2cm}}$$

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**10.** (1 pt) Find an equation of the circle with center at the origin and passing through  $(-3, -1)$  in the form of

$$(x - A)^2 + (y - B)^2 = C$$

where  $A, B, C$  are constants. Then

$$A = \underline{\hspace{2cm}}$$

$$B = \underline{\hspace{2cm}}$$

$$C = \underline{\hspace{2cm}}$$

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**11.** (1 pt) Find the equation of the circle centered at  $(2, -8)$  with radius 8

in the form  $(x - h)^2 + (y - k)^2 = r^2$

The equation is  $\underline{\hspace{4cm}}$

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**12.** (1 pt) Find an equation of the circle with center  $(9, -8)$  and radius 5 in the form of  $(x - h)^2 + (y - k)^2 = r^2$ .

The equation is  $\underline{\hspace{4cm}}$

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**13.** (1 pt) Find an equation of the circle with center at the origin and passing through  $(-3, 1)$  in the standard form  $(x - h)^2 + (y - k)^2 = r^2$ .

The equation is  $\underline{\hspace{4cm}}$

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**14.** (1 pt) Find the center and radius of the circle whose equation is  $x^2 + 3x + y^2 + 7y - 17 = 0$ .

The center of the circle is at point  $\underline{\hspace{2cm}}$ .

The radius of the circle is  $\underline{\hspace{2cm}}$ .

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The same equation in the standard form  $(x - h)^2 + (y - k)^2 = r^2$  is  $\underline{\hspace{4cm}}$

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**15.** (1 pt) Find the center and radius of the circle given by the equation

$$x^2 + y^2 - 2x - 8y + 13 = 0$$

The center is at point  $\underline{\hspace{2cm}}$

The radius is :  $\underline{\hspace{2cm}}$

The same equation in the form  $(x - h)^2 + (y - k)^2 = r^2$  is  $\underline{\hspace{4cm}}$

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**16.** (1 pt) Find the center and radius of the circle given by the equation  $x^2 + y^2 + 8x + 10y + 5 = 0$

The center is at point:  $\underline{\hspace{2cm}}$

The radius is :  $\underline{\hspace{2cm}}$

The same equation in the form  $(x - h)^2 + (y - k)^2 = r^2$  is  $\underline{\hspace{4cm}}$

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**17.** (1 pt) Find the standard form for the equation of a circle  $(x - h)^2 + (y - k)^2 = r^2$  with a diameter that has endpoints  $(-1, 1)$  and  $(4, -8)$ .

The equation is  $\underline{\hspace{4cm}}$

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**18.** (1 pt) Find the center and radius of the circle whose equation is  $2x^2 + 4x + 2y^2 - 15 = 0$ .

The center of the circle is at point  $\underline{\hspace{2cm}}$ .

The radius of the circle is  $\underline{\hspace{2cm}}$ .

The same equation in the form  $(x - h)^2 + (y - k)^2 = r^2$  is  $\underline{\hspace{4cm}}$

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