

Circles Notes

Friday, April 17, 2015 10:05 AM

Precalculus
Conics - Circles Notes

Name:
Period:

OPENER!

Factor the quadratic.

1. $x^2 + 10x + 25$

$$(x+5)(x+5)$$
$$(x+5)^2$$

2. $x^2 - 6x + 9$

$$(x-3)(x-3)$$
$$(x-3)^2$$

3. $y^2 - 14y + 49$

$$(y-7)^2$$

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What number is needed as the constant to factor these problems the same as you factored #1-3?

4. $x^2 + 12x + \underline{36}$

$\div 2 \downarrow$

$$(x+6)^2$$

5. $x^2 - 8x + \underline{16}$

\downarrow

$$(x-4)^2$$

6. $x^2 + 2x + \underline{1}$

\downarrow

$$(x+1)^2$$

Name the center and the radius of the following circles.

7. $(x+2)^2 + (y-5)^2 = 16$

Center: $(-2, 5)$
 $r = 4$

8. $(x-4)^2 + y^2 = 20$

C: $(4, 0)$
 $r = \sqrt{20} = 2\sqrt{5}$

<p>EQUATIONS OF A CIRCLE</p> $(x-h)^2 + (y-k)^2 = r^2$ <p>Center: (h, k) $r \Rightarrow$ Radius</p>	<p><u>Parametric</u></p> $x = h + r \cos t$ $y = k + r \sin t$
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9. Find the center and radius of the circle: $(x+2)^2 + (y-3)^2 = 18$

C: $(-2, 3)$
 $r = 3\sqrt{2}$

10. Write the equation of a circle with center $(6, -8)$ and radius = 1.

$$(x-6)^2 + (y+8)^2 = 1$$

Completing the Square to Write a Circle in General Circle Form

① $x^2 + 8x + y^2 - 6y = 0$

$x^2 + 8x + 16 + y^2 - 6y + 9 = 0 + 16 + 9$

$(x + 4)^2 + (y - 3)^2 = 25$ $C: (-4, 3)$
 $r = 5$

② $x^2 + y^2 = 4x - 10y + 7$

$x^2 - 4x + 4 + y^2 + 10y + 25 = 7 + 4 + 25$

$(x - 2)^2 + (y + 5)^2 = 36$ $C: (2, -5)$
 $r = 6$

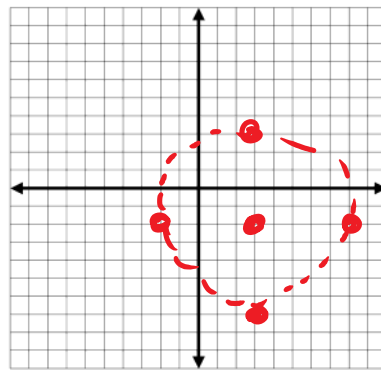
IS IT CLICKING??

For the quadratic relation $x^2 + y^2 - 6x + 4y - 12 = 0$

a) Put the equation in general form by completing the square. Show all work.

$x^2 - 6x + 9 + y^2 + 4y + 4 = 12 + 9 + 4$
 $(x - 3)^2 + (y + 2)^2 = 25$

b) Coordinates of the center of the circle (3, -2) c) Radius 5
 d) Graph



e) Write the parametric equations for the circles.

$X_r = 3 + 5 \cos t$

$Y_r = -2 + 5 \sin t$