

Geometry in Coordinate Plane

Name _____

Lines and Circles Recap

Date _____ Period _____

Write the equation of a line parallel to the given line through the given point.

1) $x + y = -2$ $(-2, 5)$ Same slope
 $-x -x \times y$
 $y = -x - 2$
 $m = -2$
 $y = mx + b$
 $5 = -2(-2) + b$
 $5 = 4 + b$
 $b = 1$
 $y = -2x + 1$

2) $3x - 5y = 20$ $(-5, 8)$
 $3x - 5y \times y$
 $-5y = 3x + 20$
 $-5y = 3x + 20$
 $-5y = 3x + 20$
 $y = \frac{3}{5}x - 4$
 $m = \frac{3}{5}$
 $y = mx + b$
 $8 = \frac{3}{5}(-5) + b$
 $8 = -3 + b$
 $+3 +3$
 $11 = b$
 $y = \frac{3}{5}x + 11$

Write the equation of a line perpendicular to the given line through the given point.

3) $8y = 40 - 2x$ $(3, 7)$ \perp slope opposite reciprocal
 $8y = 40 - 2x$
 $y = -\frac{1}{4}x + 5$
 $m = -\frac{1}{4}$
 $\perp m = \frac{4}{1} = 4$
 $y = mx + b$
 $7 = 4(3) + b$
 $7 = 12 + b$
 $-12 -12$
 $-5 = b$
 $y = 4x - 5$

4) $0 = -3y - 4x$ $(8, -2)$
 $3y + 3y \times y$
 $3y = -4x$
 $y = -\frac{4}{3}x$
 $m = -\frac{4}{3}$
 $\perp m = \frac{3}{4}$
 $y = mx + b$
 $-2 = \frac{3}{4}(8) + b$
 $-2 = 6 + b$
 $-6 -6$
 $-8 = b$
 $y = \frac{3}{4}x - 8$

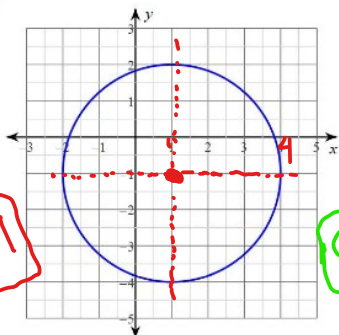
Identify the center and radius of each. Then sketch the graph.

5) $(x - 3)^2 + (y + 4)^2 = 9$
 Center $(3, -4)$
 $r = \sqrt{9} = 3$

6) $(x - 1)^2 + (y - 4)^2 = 4$
 center $(1, 4)$
 $r = \sqrt{4} = 2$

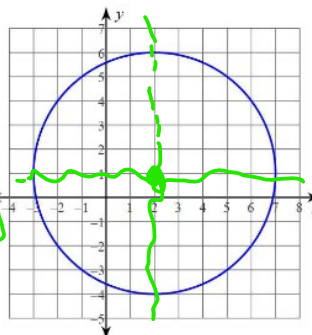
Use the information provided to write the equation of each circle.

7)



$c(1, -1)$
 $r = 3$
 $(x-1)^2 + (y+1)^2 = 9$

8)



$c(2, 1)$
 $r = 5$
 $(x-2)^2 + (y-1)^2 = 25$

9) Center: $(11, -13)$ $(x-11)^2 + (y+13)^2 = 26$
 Radius: $\sqrt{26}$

10) Center: $(-4, 2)$ $(x+4)^2 + (y-2)^2 = 100$
 Radius: 10

Identify the center and radius of each.

complete the square

11) $x^2 + y^2 + 10x - 22y + 141 = 0$

$x^2 + 10x + 25 + y^2 - 22y + 121 = -141 + 25 + 121$
 $(x+5)^2 + (y-11)^2 = 5$

12) $x^2 + y^2 - 4x - 22y + 109 = 0$

$x^2 - 4x + 4 + y^2 - 22y + 121 = -109 + 4 + 121$
 $(x-2)^2 + (y-11)^2 = 16$

$c(-5, 11)$
 $r = \sqrt{5}$

Oglesby
 @3hek79
 Geometry
 @geometry4rx
 8/6/10

$c(2, 11)$
 $r = 4$

13) $3x^2 + 3y^2 - 30x - 36y + 36 = 0$

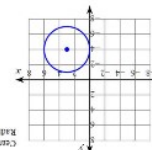
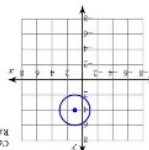
$x^2 + y^2 - 10x - 12y + 12 = 0$
 $x^2 - 10x + 25 + y^2 - 12y + 36 = -12 + 25 + 36$
 $(x-5)^2 + (y-6)^2 = 49$

14) $x^2 + y^2 + 14x - 18y + 9 = 0$

$x^2 + 14x + 49 + y^2 - 18y + 81 = -9 + 49 + 81$
 $(x+7)^2 + (y-9)^2 = 121$

$c(-7, 9)$
 $r = \sqrt{121} = 11$

$c(5, 6)$
 $r = \sqrt{49} = 7$



- 1) $y = -x + 5$
 2) $y = \frac{5}{2}x + 11$
 3) $y = 4x - 2$
 4) $y = \frac{4}{3}x - 8$
 5) Center: (-2)
 6) Center: (-2)
 7) $(x-1)^2 + (y+1)^2 = 9$
 8) $(x-2)^2 + (y-1)^2 = 25$
 9) $(x-11)^2 + (y+13)^2 = 26$
 10) $(x+4)^2 + (y-2)^2 = 100$
 11) Center: $(-5, 11)$
 12) Center: $(2, 11)$
 13) Center: $(5, 6)$
 14) Center: $(-7, 9)$
 Radius: 11