

Graphing and Properties of Circles

Identify the center and radius of each.

1) $x^2 + y^2 = 49$

C: (0, 0)

R: 7

2) $x^2 + y^2 = 324$

C: (0, 0)

R: 18

3) $(x+2)^2 + (y-3)^2 = 183$

C: (-2, 3)

R: $13.5 \sqrt{183}$

4) $(x+7)^2 + (y+8)^2 = 64$

C: (-7, -8)

R: 8

5) $(x+10)^2 + (y+9)^2 = 36$

C: (-10, -9)

R: 6

6) $(x+5)^2 + (y-10)^2 = 9$

C: (-5, 10)

R: 3

7) $x^2 + (y+2)^2 = 121$

C: (0, -2)

R: 11

8) $(x-14)^2 + (y-2)^2 = 4$

C: (14, 2)

R: 2

9) $364 + 28y + y^2 + x^2 = -26x$

$x^2 + 26x + 169 + y^2 + 28y + 196 = -364 + 169 + 196$

C: (-13, -14)

R: 1

$(x+13)^2 + (y+14)^2 = 1$

10) $x^2 + y^2 + 24x + 10y + 160 = 0$

$x^2 + 24x + 144 + y^2 + 10y + 25 = -160 + 144 + 25$

$(x+12)^2 + (y+5)^2 = 9$

C: (-12, -5)

R: 3

11) $-6x + x^2 = 97 + 10y - y^2$

$x^2 - 6x + 9 + y^2 - 10y + 25 = 97 + 9 + 25$

$(x-3)^2 + (y-5)^2 = 131$

C: (3, 5)

R: $\sqrt{131}$

12) $-6x + x^2 = 97 + 10y - y^2$

$x^2 - 6x + 9 + y^2 - 10y + 25 = 97 + 9 + 25$

$(x-3)^2 + (y-5)^2 = 131$

C: (3, 5)

R: $\sqrt{131}$

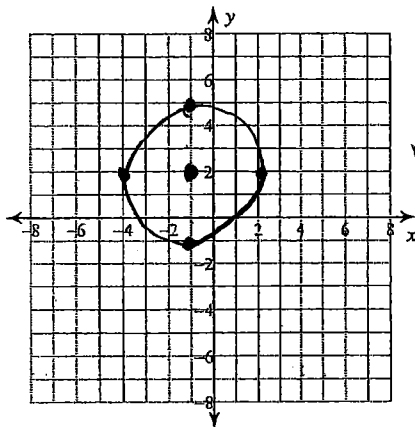
11.4

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

13) $(x+1)^2 + (y-2)^2 = 9$

C: (-1, 2)

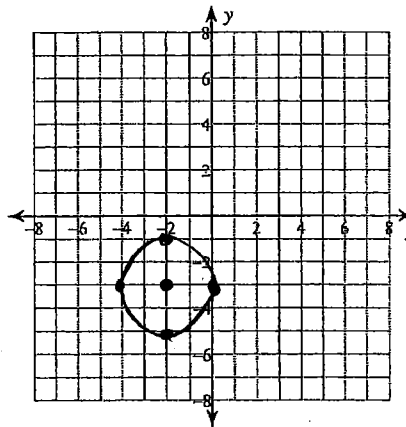
R: 3



14) $(x+2)^2 + (y+3)^2 = 4$

C: (-2, -3)

R: 2



Writing Equations of Circles

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

1) $8x + x^2 - 2y = 64 - y^2$
 $x^2 + 8x + 16 + y^2 - 2y + 1 = 64 + 16 + 1$
 $(x+4)^2 + (y-1)^2 = 81$

2) $137 + 6y = -y^2 - x^2 - 24x$
 $x^2 + 24x + 144 + y^2 + 6y + 9 = -137 + 144 + 9$
 $(x+12)^2 + (y+3)^2 = 16$

3) $x^2 + y^2 + 14x - 12y + 4 = 0$
 $x^2 + 14x + 49 + y^2 - 12y + 36 = -4 + 49 + 36$
 $(x+7)^2 + (y-6)^2 = 81$

4) $y^2 + 2x + x^2 = 24y - 120$
 $x^2 + 2x + 1 + y^2 - 24y + 144 = -120 + 1 + 144$
 $(x+1)^2 + (y-12)^2 = 25$

5) $x^2 + 2x + y^2 = 55 + 10y$
 $x^2 + 2x + 1 + y^2 - 10y + 25 = 55 + 25 + 1$
 $(x+1)^2 + (y-5)^2 = 81$

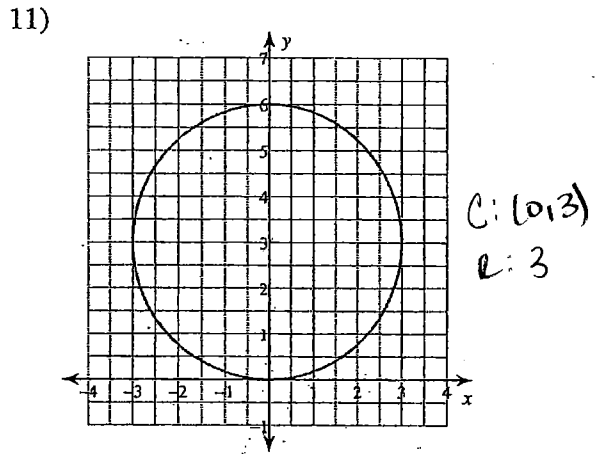
6) $8x + 32y + y^2 = -263 - x^2$
 $x^2 + 8x + 16 + y^2 + 32y + 256 = -263 + 256 + 16$
 $(x+4)^2 + (y+16)^2 = 9$

7) Center: $(-11, -8)$
 Radius: 4
 $(x+11)^2 + (y+8)^2 = 16$

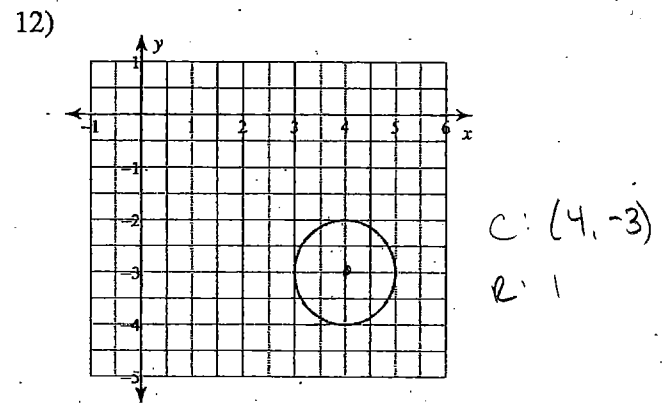
8) Center: $(-6, -15)$
 Radius: $\sqrt{5}$
 $(x+6)^2 + (y+15)^2 = 5$

9) $(x-16)^2 + (y-6)^2 = 1$
 Translated 4 left, 2 up
 $C: (16, 6)$
 $-4 + 2$
 $C: (12, 8)$
 $(x-12)^2 + (y-8)^2 = 1$

10) $(x+5)^2 + (y+7)^2 = 36$
 Translated 5 left, 4 down
 $C: (-5, -7)$
 $-5 - 4$
 $C: (-10, -11)$
 $(x+10)^2 + (y+11)^2 = 36$



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



$(x-4)^2 + (y+3)^2 = 1$