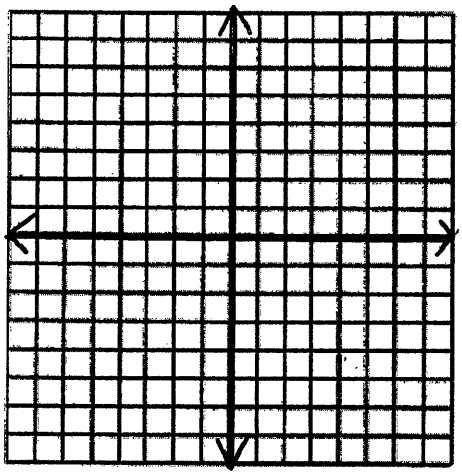
# Geometry Writing Circles Equation WS #2

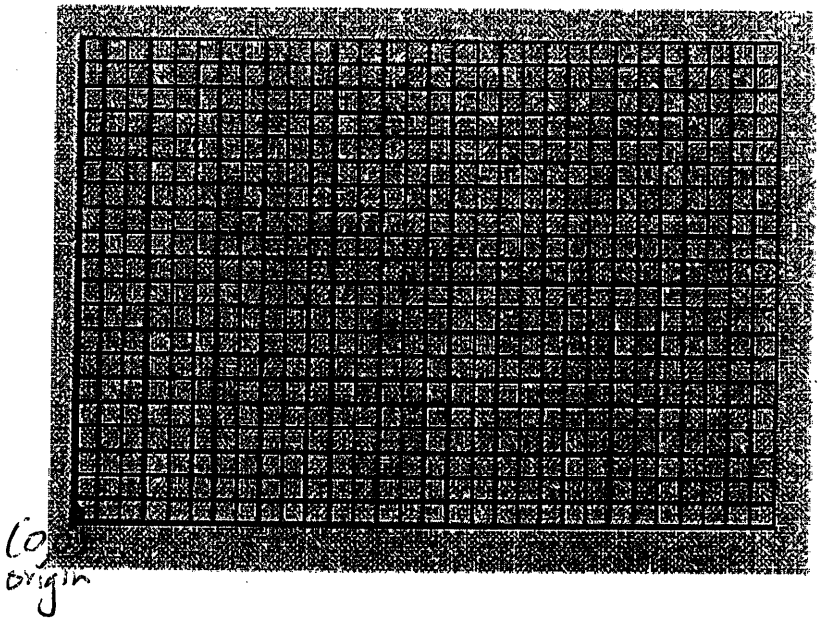
Circle equation: $(x-h)^2 + (y-k)^2 = r^2$ Center: (h, k) radius: r

**Ex 4: State the center and radius of $(x-2)^2 + (y+5)^2 = 9$. Graph the circle.**



**Ex 5: The point (2,1) is on a circle whose center is (4,-3). Write the standard equation of the circle.**

**Ex 6: The equation of a circle is $(x-13)^2 + (y-6)^2 = 9$. Three points are located as follows: A(5,6), B(14,8), & C(20,9). Which pt. is in the circle?**




**Match the equation of a circle with its description.**

1. $(x+2)^2 + (y+3)^2 = 4$
2. $(x-2)^2 + (y+5)^2 = 9$
3. $(x+3)^2 + (y-5)^2 = 16$
4. $(x+2)^2 + (y+3)^2 = 9$
5. $(x+3)^2 + (y-5)^2 = 16$
6. $(x-2)^2 + (y-5)^2 = 9$

A. center $(-3, 5)$, radius 4
B. center $(-2, -3)$, radius 3
C. center $(-2, -3)$, radius 2
D. center $(2, 5)$, radius 3
E. center $(-3, 5)$, radius 4
F. center $(2, -5)$, radius 3

Give the center and radius of the circle.

7. $(x - 4)^2 + (y + 2)^2 = 25$

8. $(x + 2)^2 + (y + 4)^2 = 9$

9. $(x - 5)^2 + (y - 3)^2 = 16$

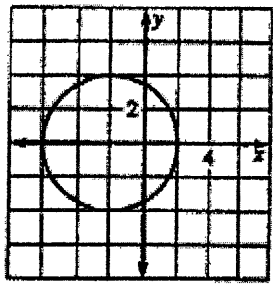
10. $(x + 6)^2 + (y - 4)^2 = 4$

11. $(x - 5)^2 + (y - 6)^2 = 36$

12. $(x + 3)^2 + (y - 4)^2 = 16$

**Give the coordinates of the center, the radius, and the equation of the circle.**

13.

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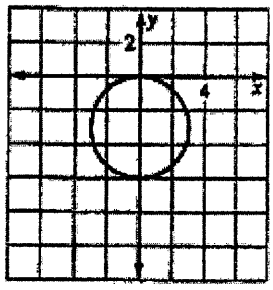


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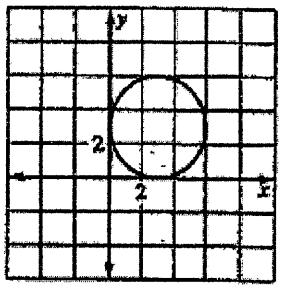



**Write the standard equation of the circle with the given center and radius.**

16. center $(0, 0)$, radius 1

17. center $(0, 4)$, radius 4

18. center $(-4, 2)$, radius 3

19. center $(-3, -5)$, radius 5

**The equation of a circle is $(x - 4)^2 + (y - 2)^2 = 9$. Tell whether each point is *on* the circle, in the *interior* of the circle, or in the *exterior* of the circle.**

20. $(5, 1)$

21. $(8, 2)$

22. $(1, 2)$

23. $(4, 5)$

24. $(0, 2)$

25. $(4, -2)$

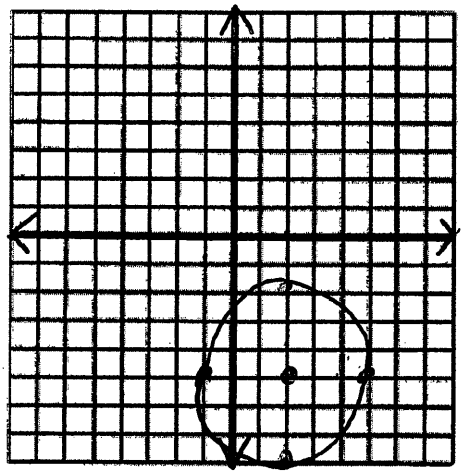
# Geometry Writing Circles Equation WS #2

Circle equation: $(x-h)^2 + (y-k)^2 = r^2$ Center: (h, k) radius: r

Key

**Ex 4: State the center and radius of $(x-2)^2 + (y+5)^2 = 9$. Graph the circle.**

C(2,-5)
r=3



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

**Ex 5: The point (2,1) is on a circle whose center is (4,-3). Write the standard equation of the circle.**

$(2-4)^2+(1+3)^2=r^2$ | $20=r^2$

$4+4^2=r^2$

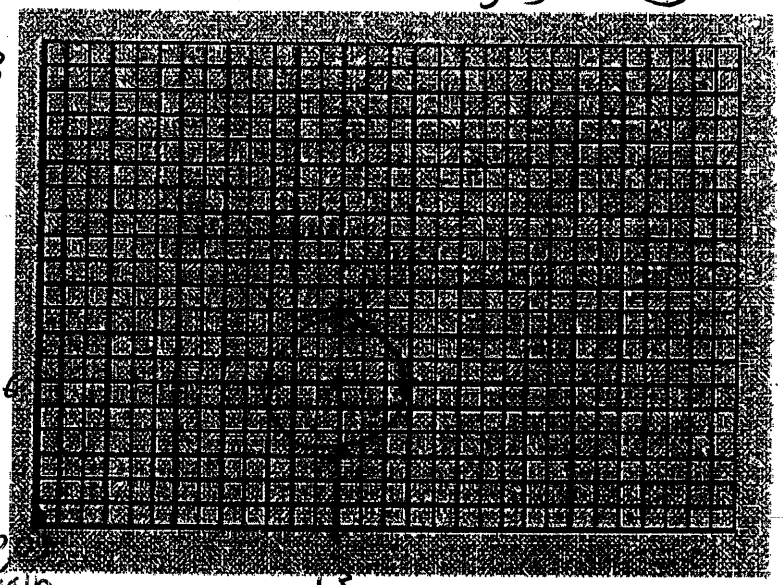
$\boxed{(x-4)^2+(y+3)^2=20}$

**Ex 6: The equation of a circle is $(x-13)^2 + (y-6)^2 = 9$. Three points are located as follows: A(5,6), B(14,8), & C(20,9). Which pt. is in the circle?** C(13,6) r=3

$(5-13)^2+(6-9)^2=73$
(outside circle)

$(14-13)^2+(8-6)^2=5$
(inside circle)

$(20-13)^2+(9-6)^2=58$
$\boxed{\text{outside circle}}$



(0,0) origin 13

**Match the equation of a circle with its description.**

1. $(x+2)^2 + (y+3)^2 = 4$
2. $(x-2)^2 + (y+5)^2 = 9$
3. $(x+3)^2 + (y-5)^2 = 16$
4. $(x+2)^2 + (y+3)^2 = 9$
5. $(x+3)^2 + (y-5)^2 = 16$
6. $(x-2)^2 + (y-5)^2 = 9$

A. center (−3, 5), radius 4
B. center (−2, −3), radius 3
C. center (−2, −3), radius 2
D. center (2, 5), radius 3
E. center (−3, 5), radius 4
F. center (2, −5), radius 3

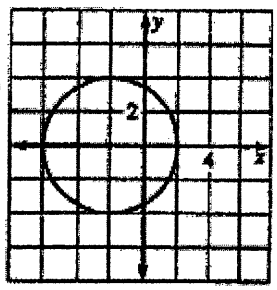
1) C(-2,-3) r=2 $\boxed{C}$
2) C(2,-5) r=3 $\boxed{F}$
3) C(-3,5) r=4 $\boxed{E/A}$
4) C(-2,-3) r=3 $\boxed{B}$
5) C(-3,5) r=4 $\boxed{E/A}$
6) C(2,5) r=3 $\boxed{D}$

**Give the center and radius of the circle.**

7. $(x-4)^2+(y+2)^2=25$ $C(4,-2)$ $r=5$
8. $(x+2)^2+(y+4)^2=9$ $C(-2,-4)$ $r=3$
9. $(x-5)^2+(y-3)^2=16$ $C(5,3)$ $r=4$
10. $(x+6)^2+(y-4)^2=4$ $C(-6,4)$ $r=2$
11. $(x-5)^2+(y-6)^2=36$ $C(5,6)$ $r=6$
12. $(x+3)^2+(y-4)^2=16$ $C(-3,4)$ $r=4$

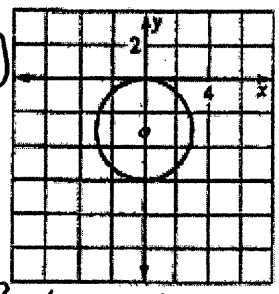
**Give the coordinates of the center, the radius, and the equation of the circle.**

13. $C(-2,0)$ $r=4$



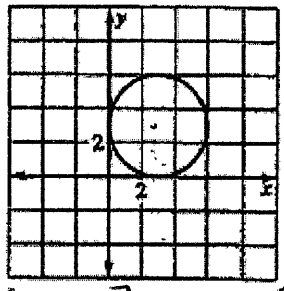
$(x+2)^2+(y-0)^2=16$

14. $C(0,-3)$ $r=3$



$(x-0)^2+(y+3)^2=9$

15. $C(3,3)$ $r=3$



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

**Write the standard equation of the circle with the given center and radius.**

16. center (0, 0), radius 1

h k

$(x-0)^2+(y-0)^2=1$

17. center (0, 4), radius 4

h k

$(x-0)^2+(y-4)^2=16$

18. center (−4, 2), radius 3

h k

$(x+4)^2+(y-2)^2=9$

19. center (−3, −5), radius 5

h k

$(x+3)^2+(y+5)^2=25$

**The equation of a circle is $(x-4)^2+(y-2)^2=9$. Tell whether each point is *on* the circle, in the *interior* of the circle, or in the *exterior* of the circle.**

20. (5, 1)

x y

$(5-4)^2+(1-2)^2=2<9$

inside circle

21. (8, 2)

x y

$(8-4)^2+(2-2)^2=16>9$

outside circle

22. (1, 2)

x y

$(1-4)^2+(2-2)^2=9=9$

on circle

23. (4, 5)

x y

$(4-4)^2+(5-2)^2=9=9$

on circle

24. (0, 2)

$(0-4)^2+(2-2)^2=16>9$

outside circle

25. (4, −2)

$(4-4)^2+(-2-2)^2=16>9$

outside circle