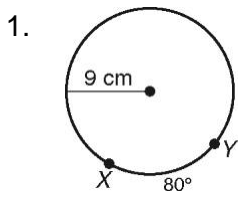
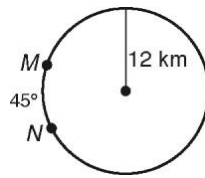


16.2-16.3 Show all work, correct answers, and fix work for credit. Name _____

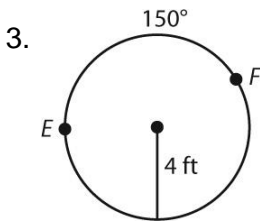
Calculate the length of the arc. Give answer in terms of π and rounded to the nearest hundredth.



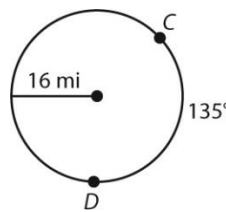
$\widehat{XY} = 4\pi \text{ cm} \approx 12.57 \text{ cm}$



$\widehat{MN} = 3\pi \text{ km} \approx 9.42 \text{ km}$



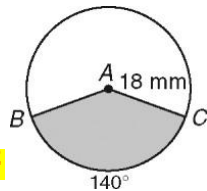
$m\widehat{EF} = \frac{10}{3}\pi \text{ ft} \approx 10.47 \text{ ft}$



$\widehat{CD} = 12\pi \text{ mi} \approx 37.7 \text{ mi}$

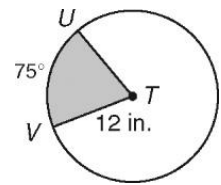
Calculate the area of the sector. Give answers in terms of π and rounded to the nearest hundredth.

5. sector BAC



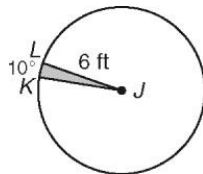
$= 126\pi \text{ mm}^2 \approx 395.84 \text{ mm}^2$

6. sector UTV



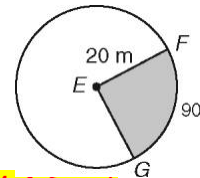
$= 30\pi \text{ in}^2 \approx 94.25 \text{ in}^2$

7. sector KJL



$= \pi \text{ ft}^2 \approx 3.14 \text{ ft}^2$

8. sector FEG



$= 100\pi \text{ m}^2 \approx 314.16 \text{ m}^2$

Write the radius and center of each circle.

1. $(x - 2)^2 + (y - 5)^2 = 36$ $r = 6$ center = $(2, 5)$

2. $x^2 + y^2 = 25$ $r = 5$ center = $(0, 0)$

3. $(x - 8)^2 + (y + 3)^2 = 9$ $r = 3$ center = $(8, -3)$

4. $x^2 + y^2 = 49$ $r = 7$ center = $(0, 0)$

Write the equation of each circle.

5. Circle L with center $L(4, -3)$ and radius 5

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

6. Circle A centered at the origin with radius 6

$x^2 + y^2 = 36$

7. Circle D with center $D(3, 3)$ and radius 2

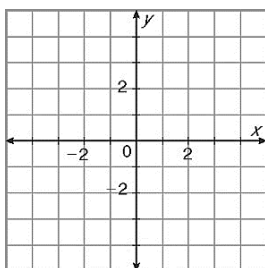
$(x - 3)^2 + (y - 3)^2 = 4$

8. Circle M with center $M(0, -2)$ and radius 9

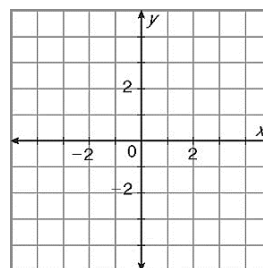
$x^2 + (y + 2)^2 = 81$

Graph each equation. Use the radius to plot four points around the center that lie on the circle. Then draw a circle through the four points. **Include drawing.**

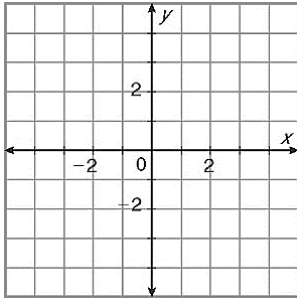
9. $x^2 + y^2 = 25$ center is $(0,0)$ radius is 5



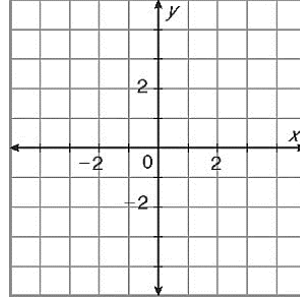
10. $(x + 2)^2 + (y - 1)^2 = 4$ center is $(-2, 1)$ radius is 2



11. $x^2 + (y + 3)^2 = 1$ center is (0,-3) radius is 1



12. $(x - 1)^2 + (y - 1)^2 = 16$ center is (1,1) radius is 4



Fill in the missing numbers to complete the square for the equation of the circle. Then rewrite the equation and find the radius and the center.

13. $x^2 + 6x + \underline{\hspace{2cm}} + y^2 + 8y + \underline{\hspace{2cm}} = 11 + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$

$(\quad + \quad)^2 + (\quad + \quad)^2 =$ radius is 6 center is (-3, -4)

14. $x^2 + 2x + \underline{\hspace{2cm}} + y^2 + 4y + \underline{\hspace{2cm}} = 59 + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$

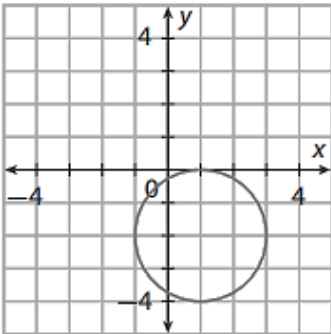
$(\quad + \quad)^2 + (\quad + \quad)^2 =$ radius is 8 center is (-1, -2)

15. $x^2 + 4x + \underline{\hspace{2cm}} + y^2 + 10y + \underline{\hspace{2cm}} = 20 + \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$

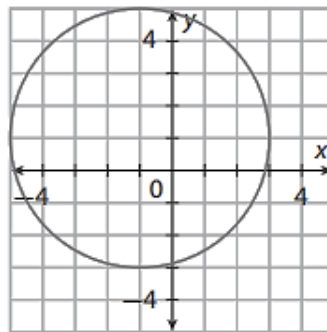
$(\quad + \quad)^2 + (\quad + \quad)^2 =$ radius is 7 center is (-2, -5)

Write the equation of each circle.

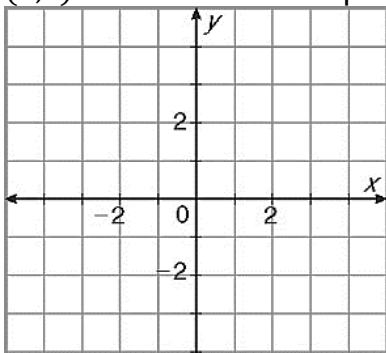
16. $(x - 1)^2 + (y + 2)^2 = 4$



17. $(x + 1)^2 + (y - 1)^2 = 16$

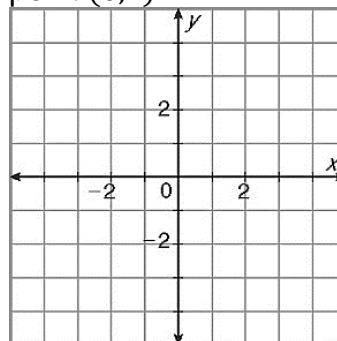


18. Prove or disprove that the point (4, -4) lies on the circle that is centered at (1,0) and contains the point (1,5).



Yes (4, -4) lies on the circle. (make sure you show work)

19. $(1, \sqrt{3})$ lies on the circle that is centered at the origin and contains the point (0,2).



Yes $(1, \sqrt{3})$ lies on the circle (make sure you show work)