

Given a circle with a radius of 4 inches, find the:

- 1) Area of the circle

$$A = \pi (4)^2 = \boxed{16\pi}$$

- 2) Circumference of the circle

$$C = 2\pi \cdot 4 = \boxed{8\pi}$$

$$A = \pi r^2$$

$$C = 2\pi r$$

Use the figure to the right to answer the following.

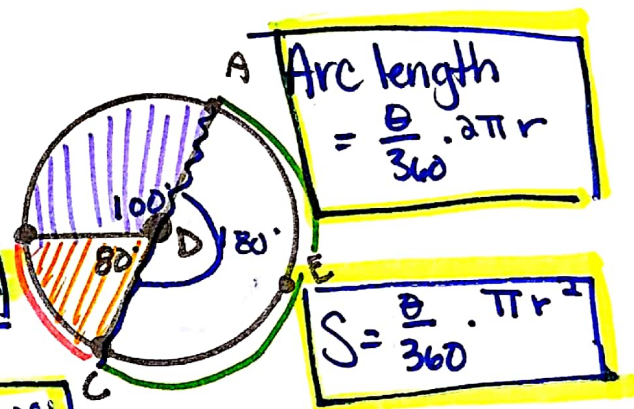
3)  $m\angle BDA = \boxed{100^\circ}$

4)  $m\angle ADC = \boxed{180^\circ}$

5) Arc length of  $\widehat{BC} = \frac{80}{360} \cdot (2\pi \cdot 2) = \frac{8\pi}{9} \approx \boxed{2.8}$

6) Arc length of  $\widehat{AEC} = \frac{180}{360} (2\pi \cdot 2) = \boxed{2\pi \approx 6.28}$

diameter = 4



7) Sector area of  $\angle BDC = \frac{80}{360} (\pi \cdot 2^2) = \boxed{2.8}$

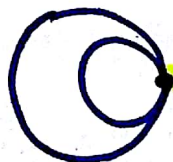
8) Sector area of  $\angle BDA = \frac{100}{360} \cdot (\pi \cdot 2^2) = \boxed{3.5}$

9 - 10) Draw an example of the following:

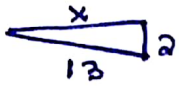
9) Common internal tangent



10) Internal tangent circles

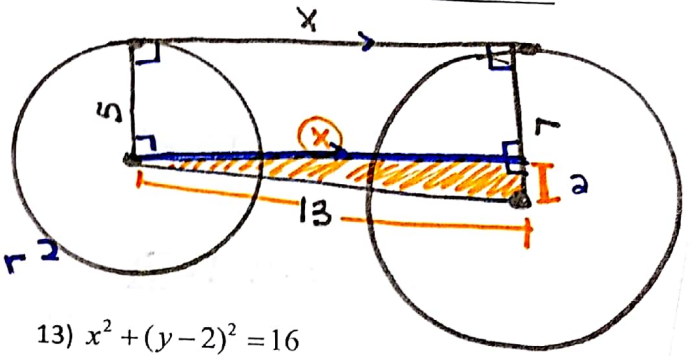


11) Find the length of the tangent line.



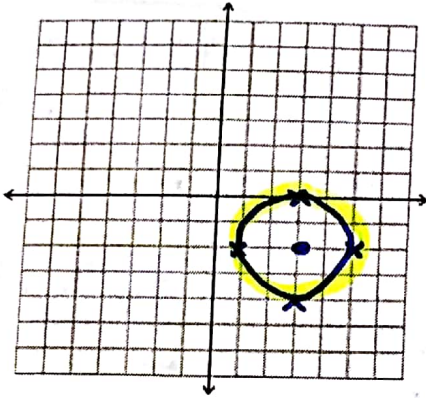
$$x^2 = 13^2 - 2^2$$

$$x = \sqrt{165} = \boxed{12.8}$$

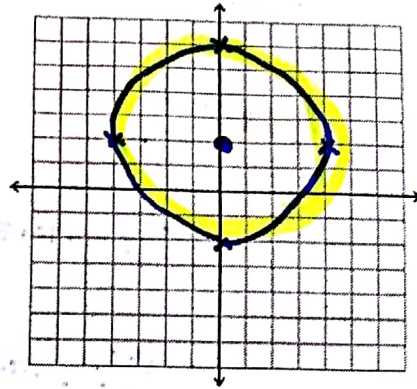


Graph the following  $(x-h)^2 + (y-k)^2 = r^2$

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

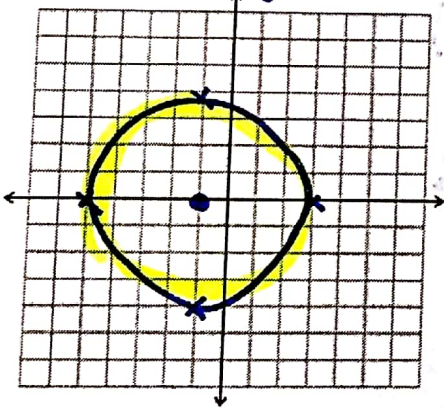


13)  $x^2 + (y-2)^2 = 16$

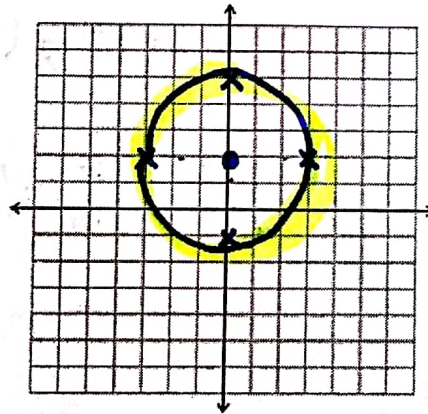


14)  $x^2 + 2x + 1 + y^2 = 16$

$$(x+1)^2 + y^2 = 16$$



15)  $x^2 + 4 = -(y-2)^2 + 13$   $x^2 + (y-2)^2 = 9$



16) Write the equation of the circle with a center (5,2) and radius of 13

$$(x-5)^2 + (y-2)^2 = 169$$

17) Write the equation of the circle with a center at the origin and a diameter of 10.

$$\rightarrow r = 5$$

$$x^2 + y^2 = 25$$

18) Write the equation of the circle with a center of (-4, 7) and area of  $16\pi$ .

$$\rightarrow \pi r^2 = 16\pi \rightarrow r^2 = 16$$

$$(x+4)^2 + (y-7)^2 = 16$$

19) Write the equation of the circle with end points of a diameter at (2, 4) and (10, -8).

$$(x-6)^2 + (y+2)^2 = 52$$

① Midpoint  $\rightarrow (h,k)$   
②  $r^2$  by plugging in  $(x,y)$

20) If the area of a circle is  $25\pi$ , find the circumference.

$$10\pi \text{ or } 31.4$$

① Find r  
② Plug into  $2\pi r$

21) What is the radius of a circle that has an arc length of 30 and its intercepted arc is  $70^\circ$ .

$$A = \frac{\theta}{360} (2\pi r)$$

$$r = 24.6$$