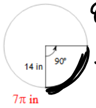
Find the length of each arc.

1)



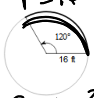
7π in

$\theta = 90°$ $\frac{90}{180} \cdot \frac{1}{2} \cdot 14$

$r = 14$

$\boxed{7\pi}$

2)



$\frac{32\pi}{3}$ ft

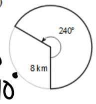
$r = 16$

$\theta = 120$ $\frac{2}{3}$

$\frac{2}{3} \cdot 16$ $\frac{32}{3}\pi$ $\frac{120}{180}$ $\frac{2}{3}$

Find the area of each sector.

3)



$\frac{128\pi}{3}$ km^2

$r = 8$

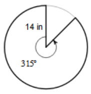
$\theta = 240°$

$\left(\frac{1}{2}\right)(\theta)(r$

$\left(\frac{1}{2}\right)\left(\frac{240}{180}\right)(8^2)$

$\frac{128\pi}{3}$

4)



$\frac{343\pi}{2}$ in^2

$r = 14$

$\theta = 315°$

$\left(\frac{1}{2}\right)\left(\frac{315}{180}\right)(14^2)$

$\frac{343\pi}{2}$

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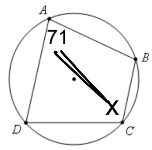
5



An inscribed quadrilateral

Angles opposite (across) Kitty corner add up 180°

$180 - 71$

$\boxed{x = 109°}$

May 2-7:00 AM

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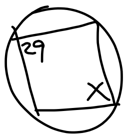
6 A quadrilateral is inscribed in a circle one of its measures 29°, find the measure of the angle opposite it.



$180 - 29$

$\boxed{151°}$

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Convert 45° degrees into radians.

7 $\frac{45}{180}$ $\frac{1\pi}{4}$

Convert $\frac{3\pi}{4}$ into degrees.

8 $\frac{3\cancel{\pi}}{4} \cdot 180$ $\boxed{135°}$

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13 $3^{\frac{5}{4}}$ $(\sqrt[4]{3})^5$

16 $\sqrt[4]{x^3}$ $x^{\frac{3}{4}}$

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29-30 add the powers

31. multiply

32.

33. Subtract the powers

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(39) $4=\sqrt[3]{V^2}$

$4^{\frac{3}{2}} = V^{\frac{2}{3}\cdot\frac{3}{2}}$

$4 \wedge (3 \div 2)$

$V=8$

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9.7 Equation of a Circle

Equation of Circle:

(0,0) Centered at the Origin:	(h,k) Not Centered at the Origin:
$x^2+y^2=r^2$	$(x-h)^2+(y-k)^2=r^2$

Example 1: Find center and radius given the following equations

a. $x^2+y^2=49$

$C:(0,0)$ $\sqrt{r^2}=\sqrt{49}$ $r:7$

b. $(x-3)^2+y^2=64$

$C:(3,0)$ $r:8$

opposite sign

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

$C:(-2,1)$

$r:1$

d. $x^2+(y+5)^2=6$

$C:(0,-5)$

$r:\sqrt{6}$

Mar 7-2:22 PM

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arc length $S=\theta\cdot r$

Area $A=\left(\frac{1}{2}\right)(\theta)(r^2)$

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Example 2: Write the equation for the circle given the following:

a. center at origin, radius 8

$C:(0,0)$ $r:8$

$x^2+y^2=8^2$

$\boxed{x^2+y^2=64}$

b. center (-1, 5), radius 4

$C:(-1,5)$ $r:4$
h k

$\boxed{(x+1)^2+(y-5)^2=16}$

Mar 27-3:58 PM

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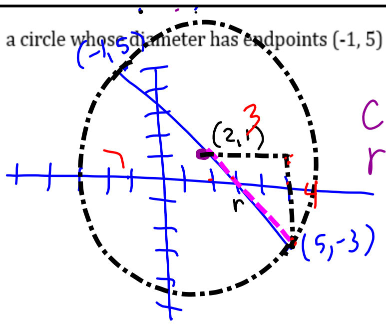
c. a circle whose diameter has endpoints (-1, 5) and (5, -3)



C:

r:

Mar 27-3:57 PM

Distance Formula: $a^2+b^2=c^2$

3^2+4^2 $r=5$ $\sqrt{(5-2)^2+(1+3)^2}$

$\sqrt{25}$

Midpoint Formula: $(-1,5)$ and $(5,-3)$
x_1 y_1 x_2 y_2

If you know 2 points to find the center

$\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$ $\frac{-1+5}{2}$ $\frac{5+-3}{2}$ center$(2,1)$

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center(2,1)
radius: 5

$$\boxed{(x-2)^2+(y-1)^2=25}$$

May 2-10:41 AM

① $x^2+y^2=9$

② $x^2+y^2=4$

③ center(6 -8) r:5

$(x-6)^2+(y+8)^2=25$

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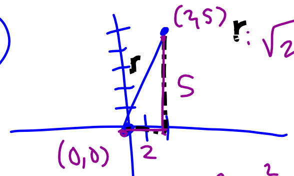
⑨



r: $\sqrt{29}$ C:(0,0)

$2^2+5^2=r^2$

$\sqrt{29}=\sqrt{r^2}$

$x^2+y^2=(\sqrt{29})^2$

$$\boxed{x^2+y^2=29}$$

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⑪ (-3,0) (3,0)

$\frac{-3+3}{2}$ $\frac{0+0}{2}$

C: (0,0)

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⑬ $x^2+y^2=16$

$\boxed{\text{C:(0,0)} \quad \text{r:4}}$

$\sqrt{r^2}=\sqrt{16}$

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⑯ $(x-2)^2+(y+2)^2=9$

$\boxed{\text{C:(2,-2)} \quad \text{r: 3}}$

May 2-10:52 AM