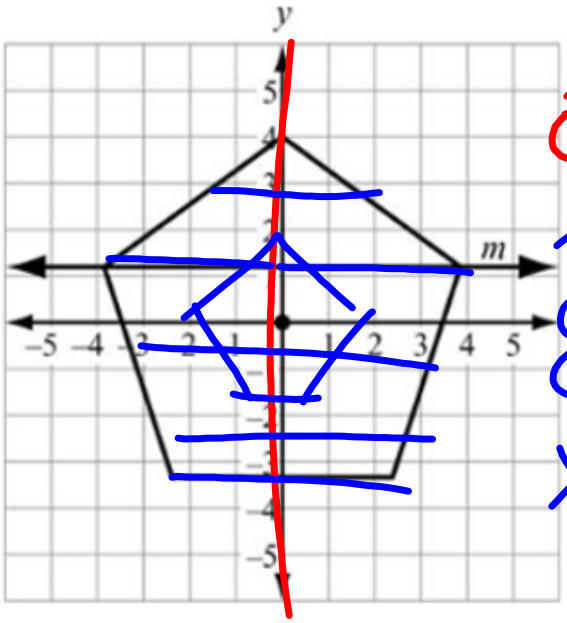
A regular pentagon in centered about the origin and has a vertex at (0, 4).
Identify **ALL** transformations that would map it onto itself.

$\frac{360}{5} = 72$
144

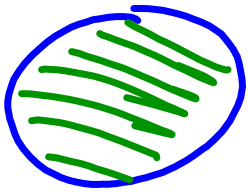


A. A reflection across the line m.
B. A dilation of 1 centered at the origin.
C. A clockwise rotation of ~~100°~~ about the origin
D. A reflection across the y-axis
E. A clockwise rotation of 144° about the origin
F. A dilation of ½ centered about the origin.

Area of a circle

$C = 2\pi r$ circumference BELT!

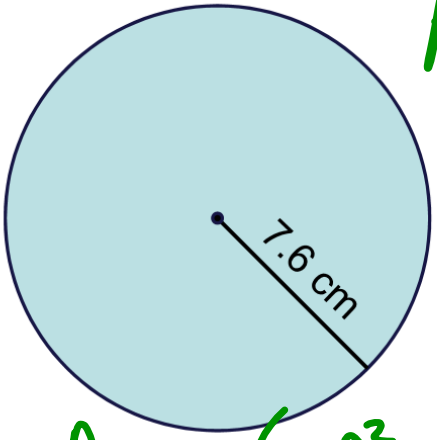
$A = \pi r^2$



ANSWERS WILL BE IN SQUARE UNITS

Find the area of each circle in terms of π and to the nearest hundredth.

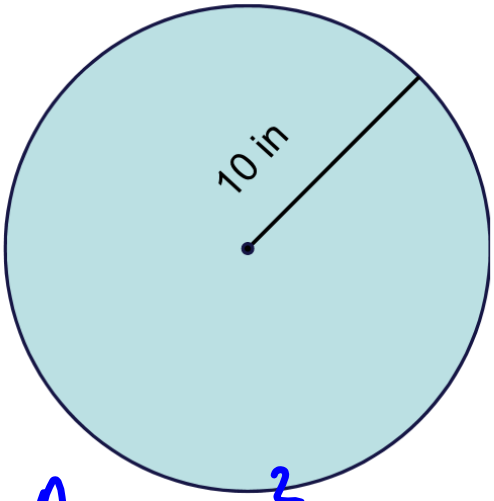
$A = \pi r^2$



$A = \pi(7.6)^2$

$= 57.76\pi \text{ cm}^2$

$\approx 181.46 \text{ cm}^2$



$A = \pi r^2$

$A = \pi(10)^2$

$= 100\pi \text{ in}^2$

$\approx 314.16 \text{ in}^2$

If ⊙S has a circumference of 10π inches, find the area of the circle to the nearest hundredth.

$C = 2\pi r$ $A = \pi r^2$

$C = \frac{2\pi r}{2\pi} = \frac{10\pi}{2\pi}$

$r = 5$

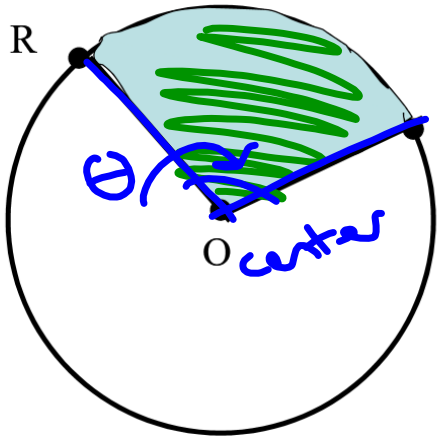
$A = \pi r^2$

$A = \pi(5)^2$

$= 25\pi \text{ in}^2$

$\approx 78.54 \text{ in}^2$

SECTOR AREA:



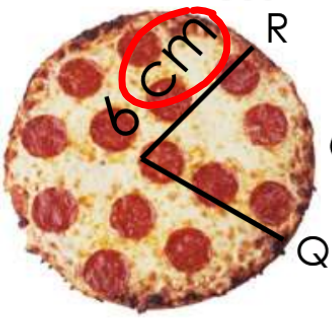
$$\text{sector} = \frac{\pi r^2 \theta}{360}$$

$$\frac{\text{Part}}{\text{whole}} = \frac{\text{Part}}{\text{whole}}$$

$$\frac{\text{Sector area}}{\text{area } \pi r^2} = \frac{\text{central angle } \theta}{360^\circ}$$

$\pi r^2 \cdot$

$$sector = \frac{\pi r^2 \theta}{360}$$



Find the area of the sector of pizza. Leave answer in terms of π

$$\text{Sector area} = \frac{\pi r^2 \theta}{360} \quad (r = 6,\ \theta = 60^\circ)$$

$$= \frac{\pi(6^2)(60)}{360}$$

$$= 6\pi \text{ cm}^2$$

Find the area of the sector of cake. Round to the nearest tenth.

$$\text{Sector area} = \frac{\pi(7)^2(120)}{360}$$

$$\approx 51.3 \text{ cm}^2$$

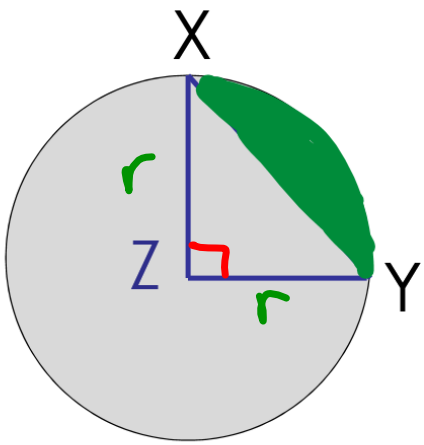
$\theta = 120^\circ$

$r = 7$

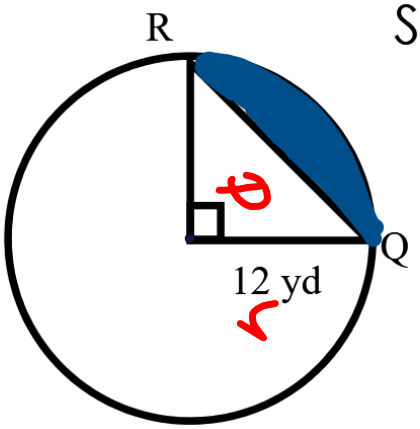
Area of a segment: a segment is a region bound by a chord and its corresponding arc.

Area of segment = Sector area - Triangle

$\frac{\pi r^2 \theta}{360} - \frac{1}{2}bh$



Find the area of the segment in the image below.



Segment = sector – triangle

$\frac{\pi r^2 \theta}{360} - \frac{1}{2}bh$

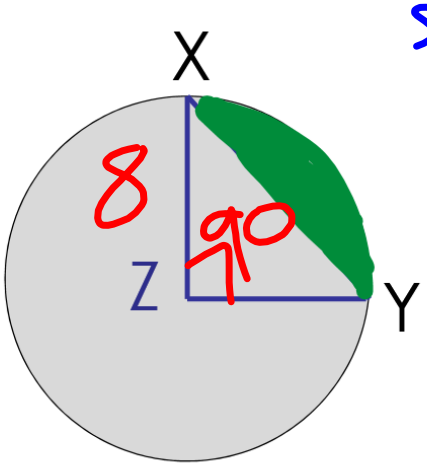
$= \frac{\pi (12)^2 (90)}{360} - \frac{1}{2}(12)(12)$

$\approx 41.09 \text{ yd}^2$ rounded

$36\pi - 72$ Exact

Given arc XY is 90° and ZX = 8

Find the shaded area.



Sector area − area triangle

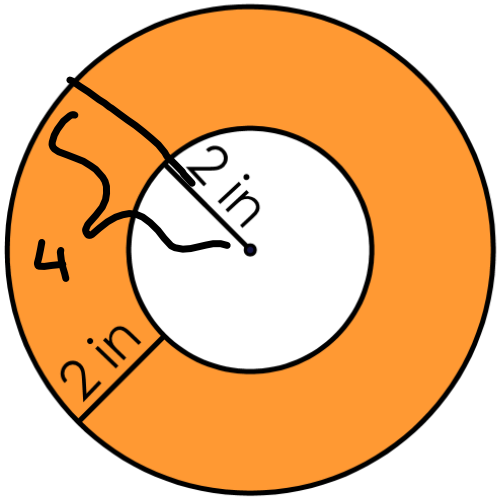
$\frac{\pi r^2 \theta}{360} - \frac{1}{2}bh$

$\frac{\pi(8)^2(90)}{360} - \frac{1}{2}(8)(8)$

≈ 18.27 units^2 sq. units

$16\pi - 32$

Find the area of the shaded region.



BIG - Small

$r = 4$ $r = 2$

$\pi r^2 - \pi r^2$

$\pi(4)^2 - \pi(2)^2$

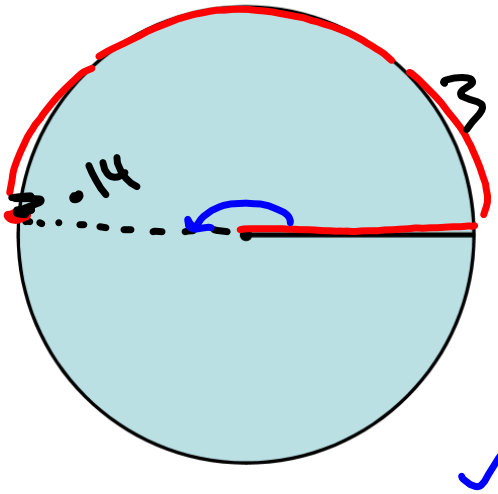
$16\pi - 4\pi$

$= 12\pi \text{ in}^2$

$\approx 37.7 \text{ in}^2$

RADIANS

Another way to measure angles
It is based on the length of the radius.



$\pi\ radians = 180^o$

To convert from radians to degrees.

$\left(\frac{180^\circ}{\pi}\right)$

To convert from degrees to radians.

$\left(\frac{\pi}{180^\circ}\right)$

Convert from radians to degrees

$\frac{\pi}{2}$ $\left(\frac{180}{\pi}\right) = 90°$

$\frac{3\pi}{4}$ $\left(\frac{180}{\pi}\right) = 135°$

$\frac{8\pi}{6}$ $\left(\frac{180}{\pi}\right) = 240°$

$\frac{18\pi}{12}$ $\left(\frac{180}{\pi}\right) = 270°$

Convert from degrees to radians

$270^o \left(\frac{\pi}{180}\right) = \frac{3\pi}{2}$ 4.71

$45^o \left(\frac{\pi}{180}\right) = \frac{1}{4}\pi$

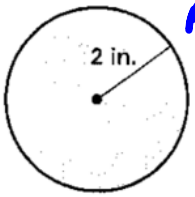
$135^o \left(\frac{\pi}{180}\right) = \frac{3}{4}\pi$

$300^o \left(\frac{\pi}{180}\right) = \frac{5}{3}\pi$

Sector Area Name _____

Date_____ Block___

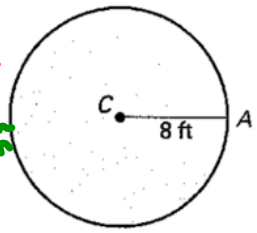
Find the exact area of the circle. Then find the area of the circle to the nearest hundredth.

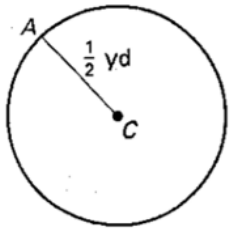
1. 

$A = \pi r^2$

$A = 4\pi$ in^2

$A \approx 12.57$ in^2

2. 

3. 

Find the indicated measure. Round to the nearest hundredths.

4. The area of a circle is 58 square inches. Find the radius.

$A = \pi r^2$

$\frac{58}{\pi} = \frac{\pi r^2}{\pi}$

$\sqrt{r^2} = \sqrt{\frac{58}{\pi}}$

$r \approx 4.30$ in

5. The area of a circle is 37 square meters. Find the radius.

6. The area of a circle is 106 square centimeters. Find the diameter.

7. The area of a circle is 249 square feet. Find the diameter.

$A = \pi r^2$

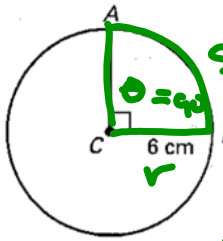
$\frac{249}{\pi} = \frac{\pi r^2}{\pi}$

$\sqrt{r^2} = \sqrt{\frac{249}{\pi}}$

$r \approx 8.90$

$D \approx 17.80$

Find the areas of the sectors formed by $\angle ACB$. round to the nearest hundredths.

8. 

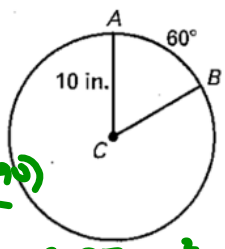
Sector $= \frac{\pi r^2 \theta}{360}$

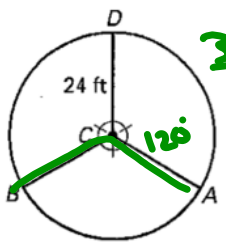
$\theta = 90$

r

$\frac{\pi(6)^2(90)}{360}$

$= 9\pi \approx 28.27$ cm^2

9. 

10. 

$\frac{360}{3} = 120$

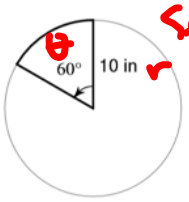
Convert the following radians measures to degrees.

11. $\frac{7\pi}{9}\left(\frac{180}{\pi}\right) = 140°$

12. $\frac{5\pi}{4}\left(\frac{180}{\pi}\right) = 225°$

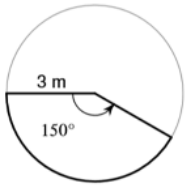
Find the area of each sector. Round your answers to the nearest tenth.

13)

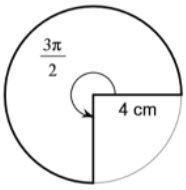


$\text{Sector} = \frac{\pi r^2 \theta}{360} = \frac{\pi(10)^2(60)}{360} = \frac{50}{3}\pi \text{ in}^2 \approx 52.4 \text{ in}^2$

14)



15)



16)

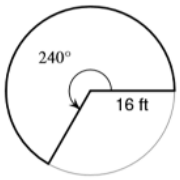
$\text{Sector} = \frac{\pi r^2 \theta}{360} = \frac{\pi(14)^2(225)}{360}$

$\frac{17\pi}{12}\left(\frac{180}{\pi}\right) = 225$

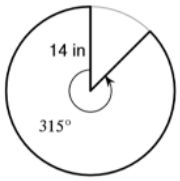
$= 384.8 \text{ yd}^2$

Find the area of each sector. Do not round.

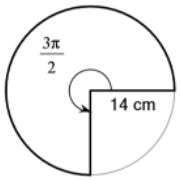
17)



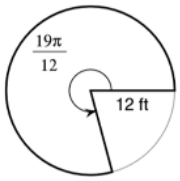
18)



19)



20)



21) $r = 10$ mi, $\theta = \frac{\pi}{2}$

22) $r = 12$ yd, $\theta = \frac{5\pi}{3}$

23) $r = 7$ km, $\theta = 60°$

24) $r = 7$ mi, $\theta = 225°$

72

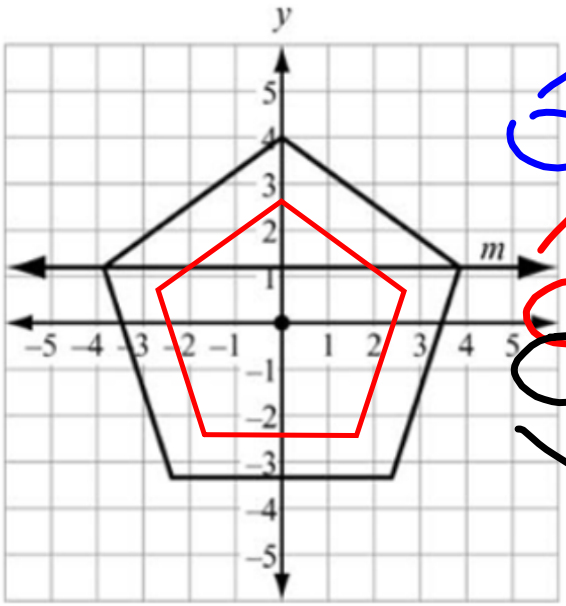
144

216

288

360

A regular pentagon in centered about the origin and has a vertex at (0, 4).
Identify **ALL** transformations that would map it onto itself.

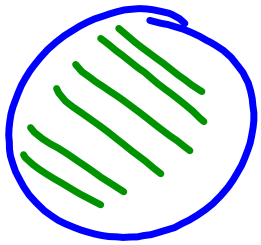


A. A reflection across the line m.
B. A dilation of 1 centered at the origin.
C. A clockwise rotation of 100° about the origin
D. A reflection across the y-axis
E. A clockwise rotation of 144° about the origin
F. A dilation of ½ centered about the origin.

Area of a circle

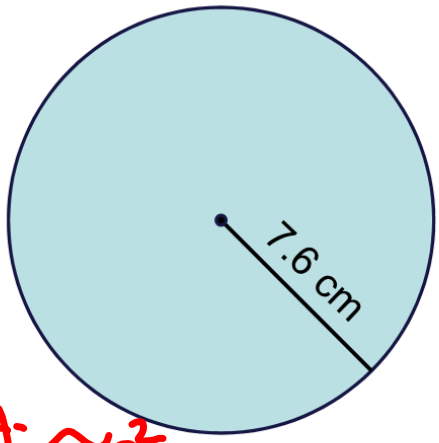
$$A = \pi r^2$$

$C = 2\pi r$



ANSWERS WILL BE IN SQUARE UNITS

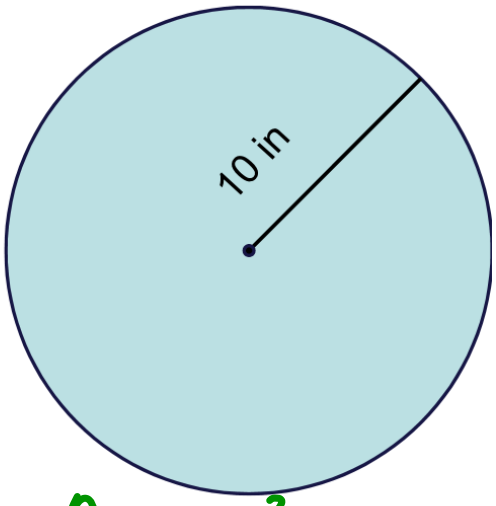
Find the area of each circle in terms of π and to the nearest hundredth.



$A = \pi r^2$

$= \pi(7.6)^2$ cm^2

$= 57.76\pi \approx 181.45$ cm^2



$A = \pi r^2$

$A = \pi(10)^2 = 100\pi$ in^2

≈ 314.16 in^2

If ⊙S has a circumference of 10π inches, find the area of the circle to the nearest hundredth.

$A = \pi r^2$

$= \pi(5)^2$

$= 25\pi \text{ in}^2$

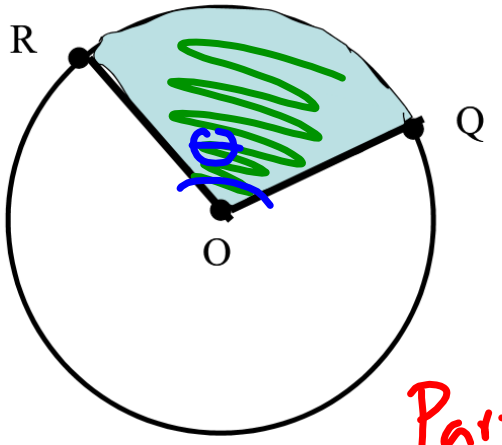
$\approx 78.54 \text{ in}^2$

$C = 2\pi r$

$\frac{10\pi}{2\pi} = \frac{2\pi r}{2\pi}$

$5 = r$

SECTOR AREA:

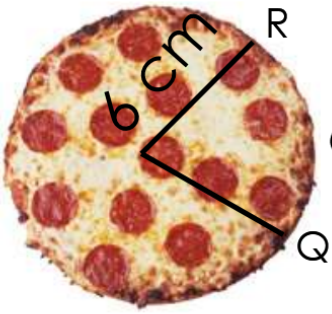


$$\text{sector} = \frac{\pi r^2 \theta}{360}$$

$$\frac{\text{Part}}{\text{Whole}} = \frac{\text{Part}}{\text{Whole}}$$

$$\frac{\text{sector area}}{\text{area } \pi r^2} = \frac{\text{central angle } \theta}{360}$$

$$sector = \frac{\pi r^2 \theta}{360}$$



Find the area of the sector of pizza. Leave answer in terms of π

$r = 6$

$\theta = 60°$

Sector area $= \frac{\pi(6)^2(60)}{360}$

$SA = 6\pi \text{ cm}^2$

Find the area of the sector of cake. Round to the nearest tenth.

$r = 7$

$\theta = 120°$

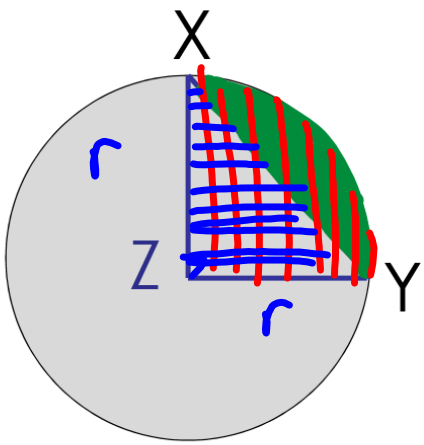
$SA = \frac{\pi(7)^2(120)}{360}$

$\approx 51.3 \text{ cm}^2$

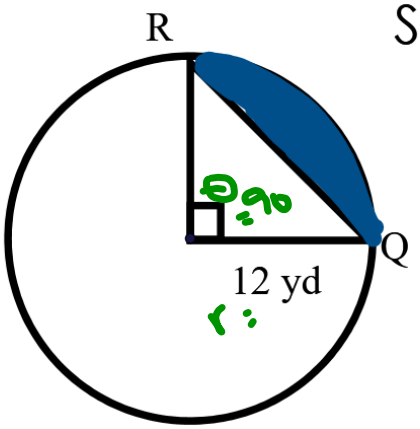
Area of a segment: a segment is a region bound by a chord and its corresponding arc.

Area of segment = Sector area - triangle area

$\frac{\pi r^2 \theta}{360} - \frac{1}{2}bh$



Find the area of the segment in the image below.



Segment = sector – triangle

$\frac{\pi r^2 \theta}{360} - \frac{1}{2}bh$

$\theta = 90$

$r = 12$

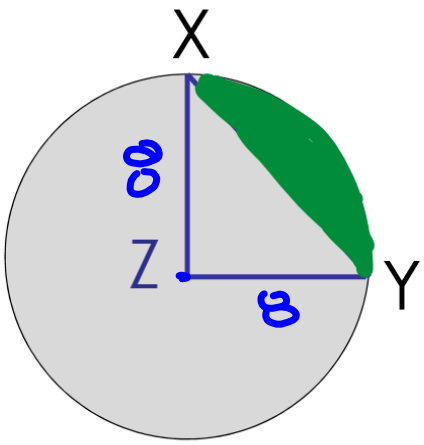
$\frac{\pi(12)^2(90)}{360} - \frac{1}{2}(12)(12)$

$= 36\pi - 72 \text{ yd}^2$

$\approx 41.10 \text{ yd}^2$

Given arc XY is 90° and ZX = 8

Find the shaded area.



Sector − triangle

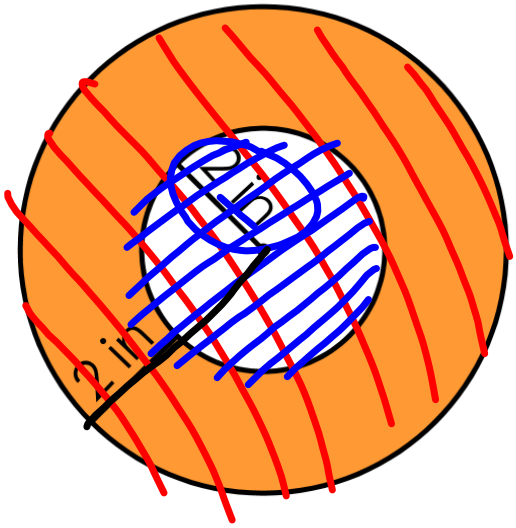
$\frac{\pi r^2 \theta}{360} - \frac{1}{2}bh$

$\frac{\pi(8)^2(90)}{360} - \frac{1}{2}(8)(8)$

$= 16\pi - 32$

≈ 18.3 sq. units

Find the area of the shaded region.



BIG - Small

$\pi r^2 - \pi r^2$

$\pi(4)^2 - \pi(2)^2$

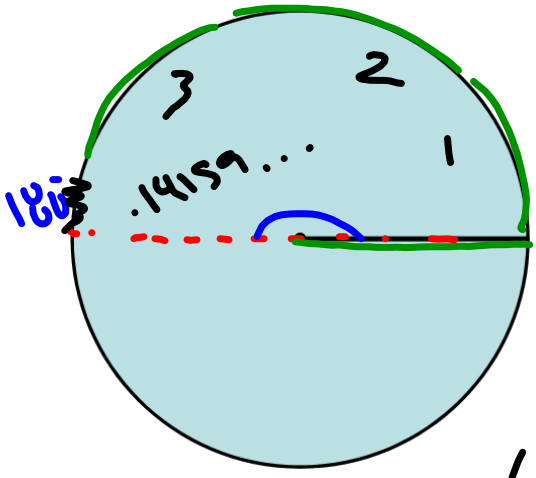
$16\pi - 4\pi$

$= 12\pi \text{ in}^2$

$\approx 37.7 \text{ in}^2$

RADIANS

Another way to measure angles
It is based on the length of the radius.



$\pi\ radians = 180^o$

To convert from radians to degrees.

$\left(\frac{180}{\pi}\right)$

To convert from degrees to radians.

$\left(\frac{\pi}{180}\right)$

Convert from radians to degrees

$\frac{\pi}{2}\left(\frac{180}{\pi}\right) = 90°$

$\frac{3\pi}{4}\left(\frac{180}{\pi}\right) = 135°$

$\frac{8\pi}{6}\left(\frac{180}{\pi}\right) = 240°$

$\frac{18\pi}{12}\left(\frac{180}{\pi}\right) = 270°$

Convert from degrees to radians

$270^o\left(\frac{\pi}{180}\right) = \frac{3\pi}{2}$ 4.71...

$45^o\left(\frac{\pi}{180}\right) = \frac{1\pi}{4}$

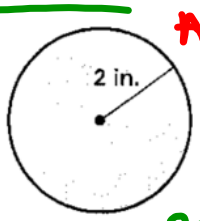
$135^o\left(\frac{\pi}{180}\right) = \frac{3\pi}{4}$

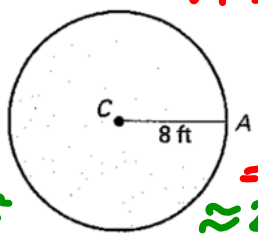
$300^o\left(\frac{\pi}{180}\right) = \frac{5\pi}{3}$

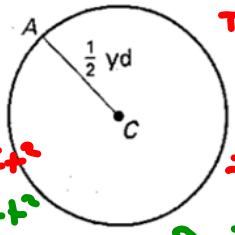
Sector Area Name _____

Date_____ Block___

Find the exact area of the circle. Then find the area of the circle to the nearest hundredth.

1. 

2. 

3. 

Find the indicated measure. Round to the nearest hundredths.

4. The area of a circle is 58 square inches. Find the radius.

5. The area of a circle is 37 square meters. Find the radius.

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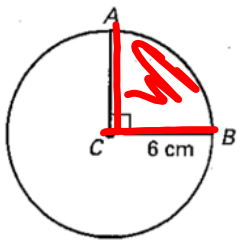
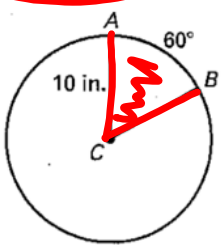
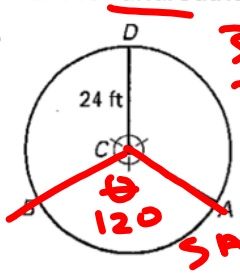
7. The area of a circle is 249 square feet. Find the diameter.

Find the areas of the sectors formed by $\angle ACB$ round to the nearest hundredths.

8. 

9. 

10. 

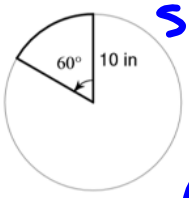
Convert the following radians measures to degrees.

11. $\frac{7\pi}{9}$

12. $\frac{5\pi}{4}$

Find the area of each sector. Round your answers to the nearest tenth.

13)

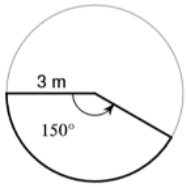


$SA = \frac{\pi r^2 \theta}{360}$

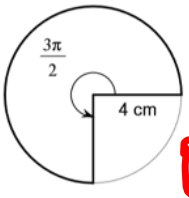
$\frac{\pi(10)^2(60)}{360}$

$\approx 52.4 \text{ in}^2$

14)



15)

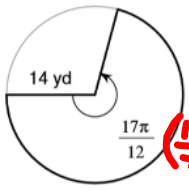


$\frac{3\pi}{2}(4^2)\left(\frac{3\pi}{2}\right)$

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

37.7

16)



$SA = \frac{\pi r^2 \theta}{360}$

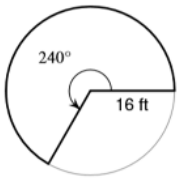
$= \frac{\pi(14)^2(255)}{360}$

$\left(\frac{180}{\pi}\right) = 255^\circ$

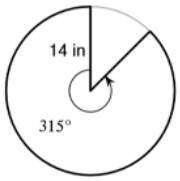
$\approx 436.2 \text{ ft}^2$

Find the area of each sector. Do not round.

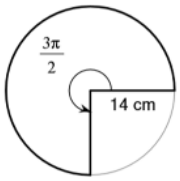
17)



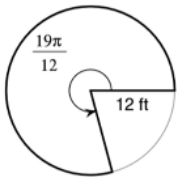
18)



19)



20)



21) $r = 10$ mi, $\theta = \frac{\pi}{2}$

22) $r = 12$ yd, $\theta = \frac{5\pi}{3}$

23) $r = 7$ km, $\theta = 60°$

24) $r = 7$ mi, $\theta = 225°$

72

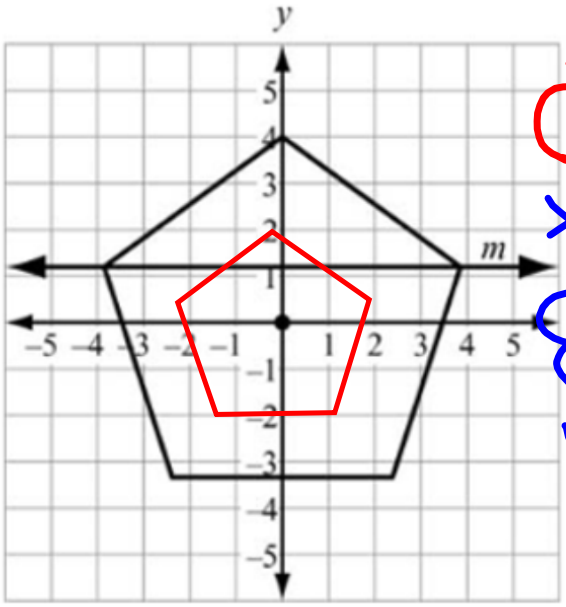
144

216

288

360

A regular pentagon in centered about the origin and has a vertex at (0, 4).
Identify **ALL** transformations that would map it onto itself.



A. A reflection across the line m.
B. A dilation of 1 centered at the origin.
C. A clockwise rotation of 100° about the origin
D. A reflection across the y-axis
E. A clockwise rotation of 144° about the origin
F. A dilation of ½ centered about the origin.

Area of a circle

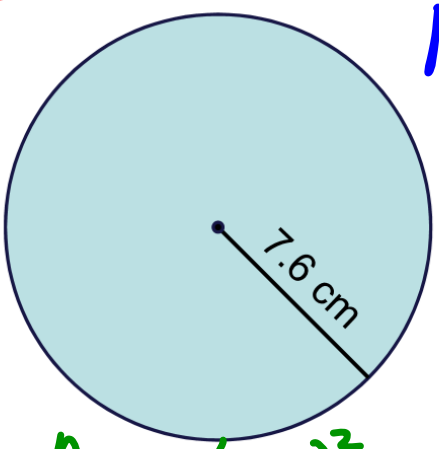
$$A = \pi r^2$$

$C = 2\pi r$

ANSWERS WILL BE IN SQUARE UNITS

Find the area of each circle in terms of π and to the nearest hundredth.

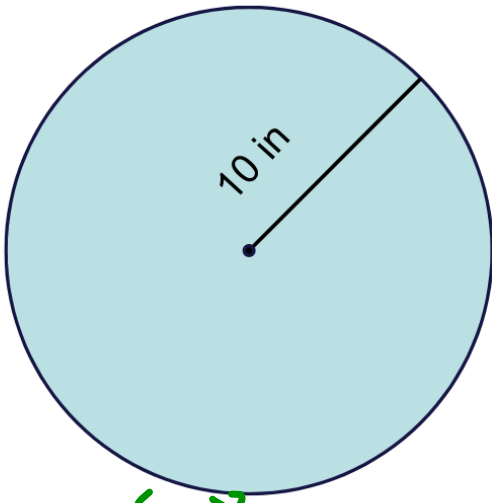
$A = \pi r^2$



$A = \pi(7.6)^2$

$= 57.76\pi \text{ cm}^2$

$\approx 181.46 \text{ cm}^2$



$A = \pi(10)^2$

$= 100\pi \text{ in}^2$

$\approx 314.16 \text{ in}^2$

If ⊙S has a circumference of 10π inches, find the area of the circle to the nearest hundredth.

$C = 2\pi r$

$\frac{10\pi}{2\pi} = \frac{2\pi r}{2\pi}$

$r = 5$

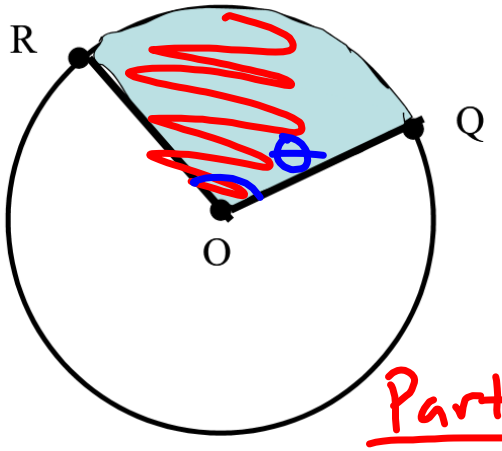
$A = \pi r^2$

$A = \pi(5)^2$

$= 25\pi \text{ in}^2$

$\approx 78.54 \text{ in}^2$

SECTOR AREA:



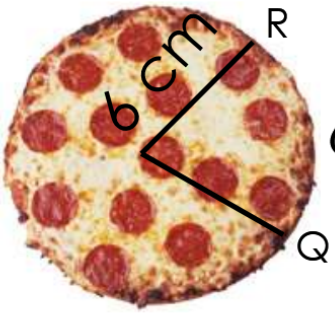
$$\text{sector} = \frac{\pi r^2 \theta}{360}$$

area

$$\frac{\text{Part}}{\text{whole}} = \frac{\text{Part}}{\text{whole}}$$

$$\frac{\text{sector area}}{\text{area } \pi r^2} = \frac{\text{central angle } \theta}{360^\circ}$$

$$sector = \frac{\pi r^2 \theta}{360}$$



Find the area of the sector of pizza. Leave answer in terms of π

$r = 6 \quad \theta = 60°$

$SA = \frac{\pi(6)^2(60)}{360}$

$= 6\pi \text{ cm}^2$

Find the area of the sector of cake. Round to the nearest tenth.

$r = 7$

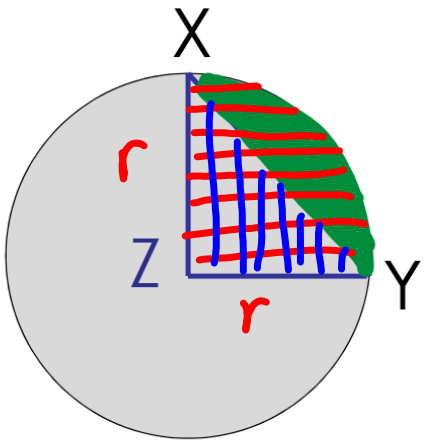
$\theta = 120°$

$SA = \frac{\pi(7)^2(120)}{360}$

$SA \approx 51.3 \text{ cm}^2$

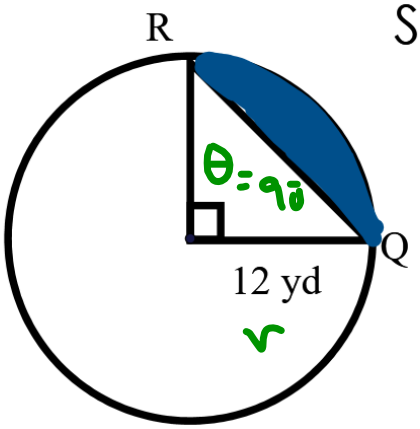
Area of a segment: a segment is a region bound by a chord and its corresponding arc.

Area of segment = Sector area - triangle area



$\frac{\pi r^2 \theta}{360} - \frac{1}{2} b \cdot h$

Find the area of the segment in the image below.



Segment = sector – triangle

$\frac{\pi r^2 \theta}{360} - \frac{1}{2} b \cdot h$

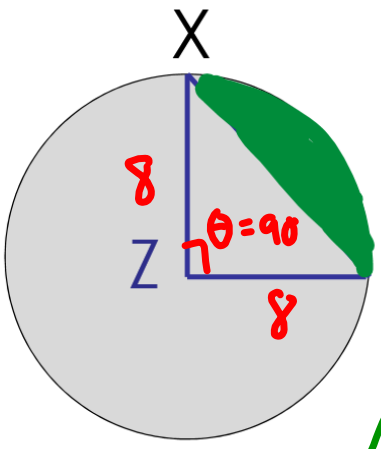
$\frac{\pi (12)^2 (90)}{360} - \frac{1}{2}(12)(12)$

$= 36\pi - 72 \text{ yd}^2$

$\approx 41.10 \text{ yd}^2$

Given arc XY is 90° and ZX = 8

Find the shaded area.



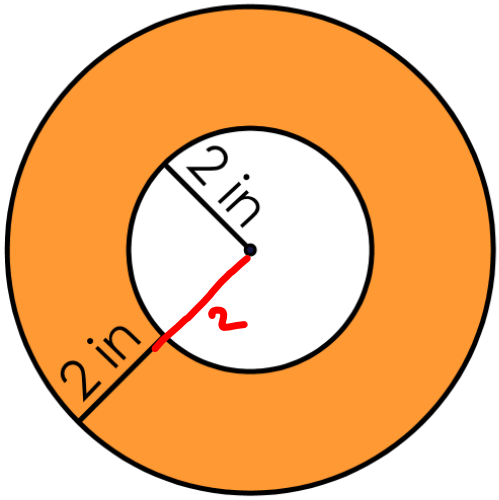
$\frac{\pi r^2 \theta}{360} - \frac{1}{2}bh$

$= \frac{\pi(8)^2(90)}{360} - \frac{1}{2}(8)(8)$

$= 16\pi - 32$ sq. units

≈ 18.27 sq. units

Find the area of the shaded region.



BIG - Small

$\pi r^2 - \pi r^2$

$\pi(4)^2 - \pi(2)^2$

$16\pi - 4\pi$

$= 12\pi \text{ in}^2$

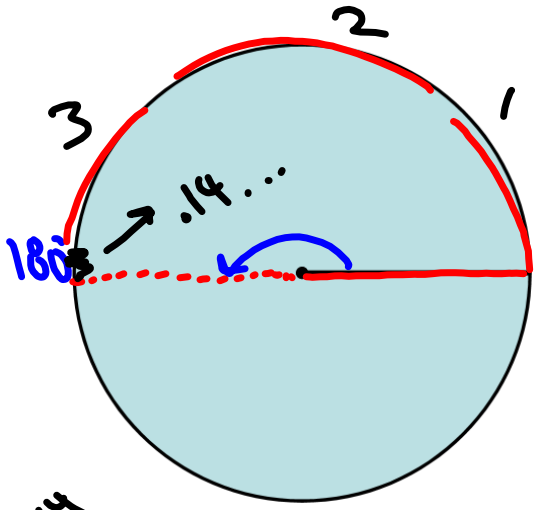
$\approx 37.80 \text{ in}^2$

$r_{BIG} = 4$ in

$r_{small} = 2$ in

RADIANS

Another way to measure angles
It is based on the length of the radius.



$\pi\ radians = 180^o$

3.14 / 180 = 180 / 180

To convert from radians to degrees.

$\left(\frac{180^\circ}{\pi}\right)$

To convert from degrees to radians.

$\left(\frac{\pi}{180^\circ}\right)$

Convert from radians to degrees

$\frac{\pi}{2}\left(\frac{180}{\pi}\right) = 90^\circ$

$\frac{3\pi}{4}\left(\frac{180}{\pi}\right) = 135^\circ$

$\frac{8\pi}{6}\left(\frac{180}{\pi}\right) = 240^\circ$

$\frac{18\pi}{12}\left(\frac{180}{\pi}\right) = 270^\circ$

Convert from degrees to radians

$270^o\left(\frac{\pi}{180}\right) = \frac{3\pi}{2}$

$45^o\left(\frac{\pi}{180}\right) = \frac{1\pi}{4}$

$135^o\left(\frac{\pi}{180}\right) = \frac{3\pi}{4}$

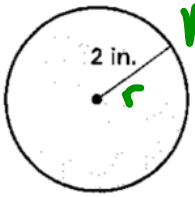
$300^o\left(\frac{\pi}{180}\right) = \frac{5\pi}{3}$

Sector Area Name _____

Date_____ Block___

Find the exact area of the circle. Then find the area of the circle to the nearest hundredth.

1.



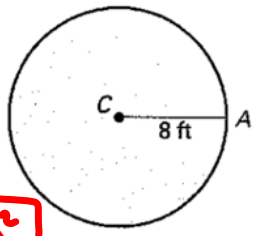
$A = \pi r^2$

$= \pi(2)^2$

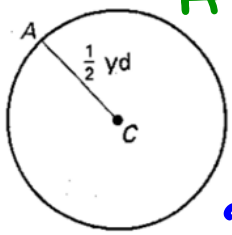
$= 4\pi \text{ in}^2$

$\approx 12.57 \text{ in}^2$

2.



3.



$A = \pi r^2$

$= \pi\left(\frac{1}{2}\right)^2$

$= \frac{1}{4}\pi$

$\approx .79$

Find the indicated measure. Round to the nearest hundredths.

4. The area of a circle is 58 square inches. Find the radius.

5. The area of a circle is 37 square meters. Find the radius.

6. The area of a circle is 106 square centimeters. Find the diameter.

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Find the areas of the sectors formed by $\angle ACB$. round to the nearest hundredths.

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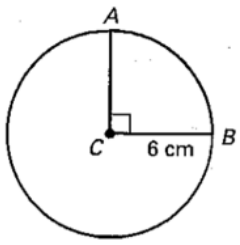
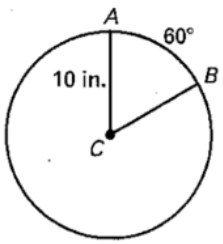
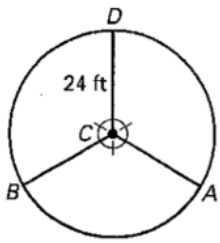


9.



10.



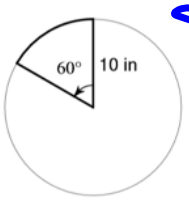
Convert the following radians measures to degrees.

11. $\frac{7\pi}{9}\left(\frac{180^\circ}{\pi}\right) = 140^\circ$

12. $\frac{5\pi}{4}\left(\frac{180^\circ}{\pi}\right) = 225^\circ$

Find the area of each sector. Round your answers to the nearest tenth.

13)



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$= \frac{\pi (10)^2 (60)}{360}$

$\approx 52.4 \text{ in}^2$

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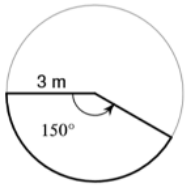

$SA = \frac{\pi r^2 \theta}{360}$

$= \frac{\pi (14)^2 (255)}{360}$

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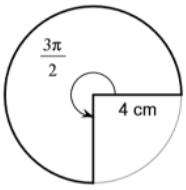
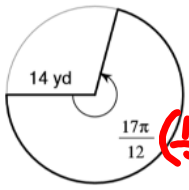
15)



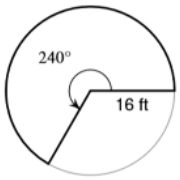
16)



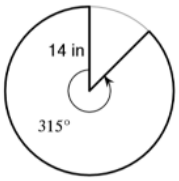
$\left(\frac{180}{\pi}\right) = 255°$

Find the area of each sector. Do not round.

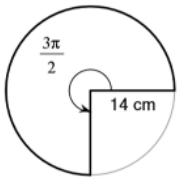
17)



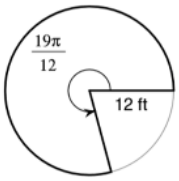
18)



19)



20)



21) $r = 10$ mi, $\theta = \frac{\pi}{2}$

22) $r = 12$ yd, $\theta = \frac{5\pi}{3}$

23) $r = 7$ km, $\theta = 60°$

24) $r = 7$ mi, $\theta = 225°$