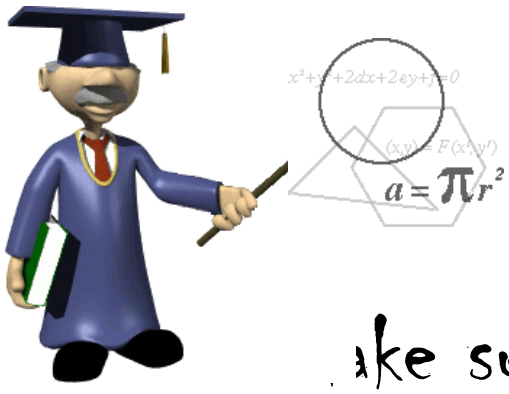
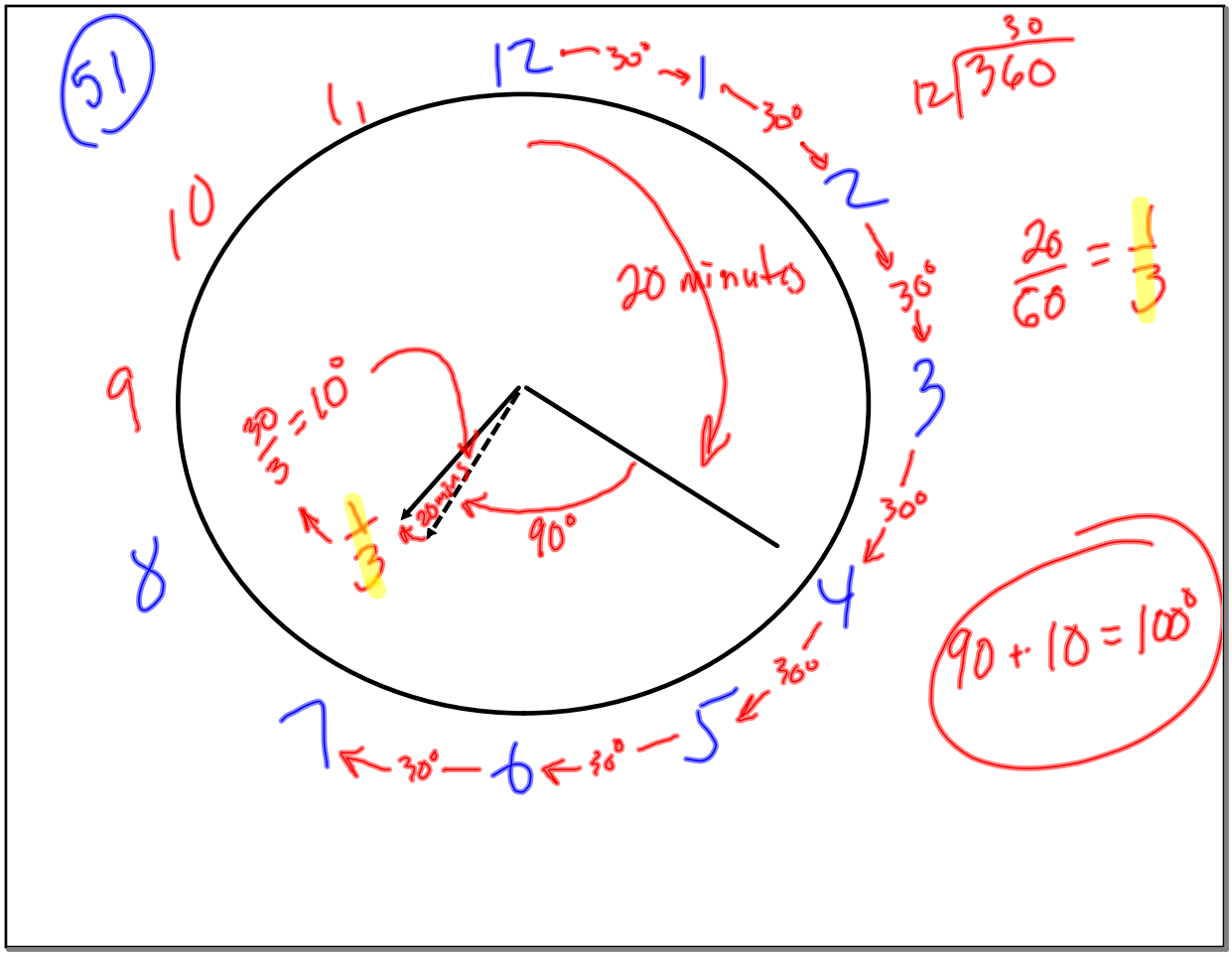


Good Afternoon!

ake sure ur rdy2go

when the bell rings!



58

A) $\frac{60}{360} 2\pi r_A = \frac{1}{6} 2\pi r_A = \frac{\pi r_A}{3}$

B) $\frac{45}{360} 2\pi r_B = \frac{1}{8} 2\pi r_B = \frac{\pi r_B}{4}$

$A : B \iff \frac{A}{B} = \frac{\frac{\pi r_A}{3}}{\frac{\pi r_B}{4}} = \frac{\pi r_A}{3} \cdot \frac{4}{\pi r_B} = \frac{4 r_A}{3 r_B}$

$4 r_A : 3 r_B$

which is bigger? r_B because it take more r_A's to match it.

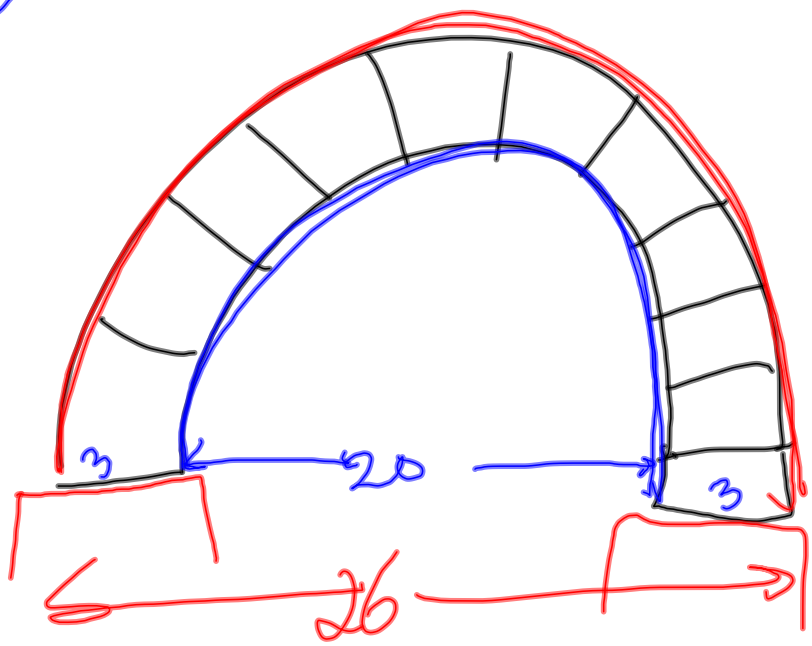
So $r_B > r_A$.

if $r_B = 4$, then $r_A = 3$

$r_A : r_B$

3:4

59



Thm 7-15: Area of a circle

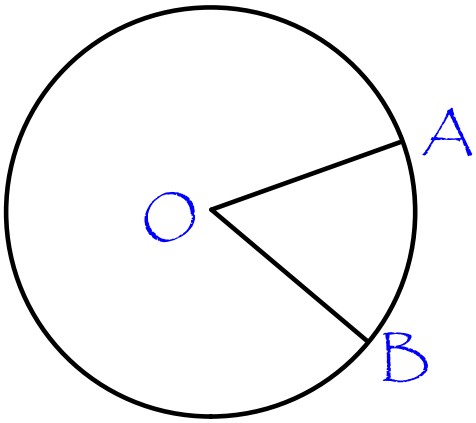
$A = \pi r^2$

Defn: Sector

The region between 2 radii and the included arc.

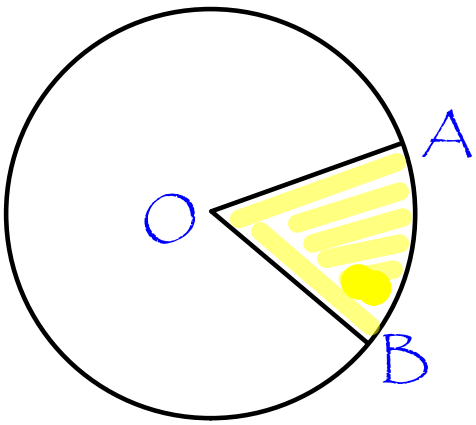
Defn: Sector

The region between 2 radii and the included arc.



Defn: Sector

The region between 2 radii and the included arc.



Defn: Sector

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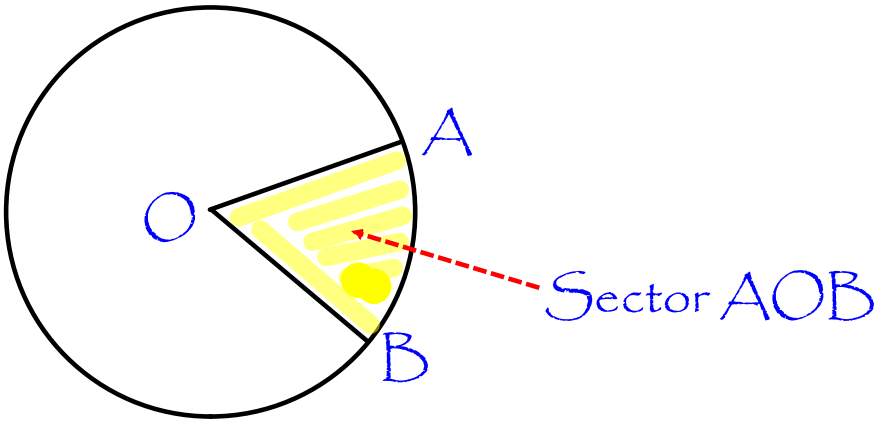
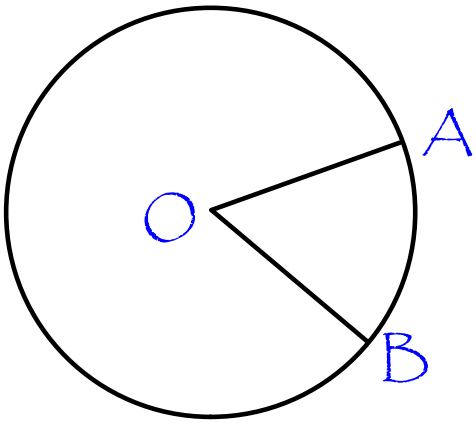


Area of a Sector

What info would you need to determine the area of sector AOB?



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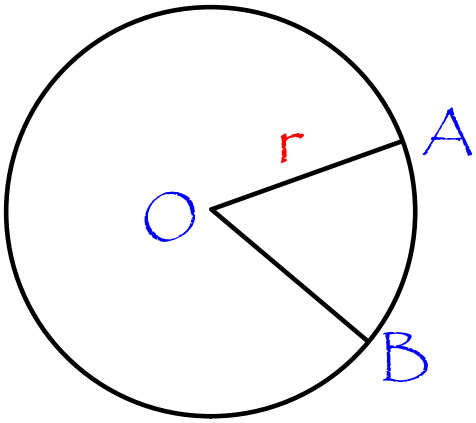

Area of a Sector

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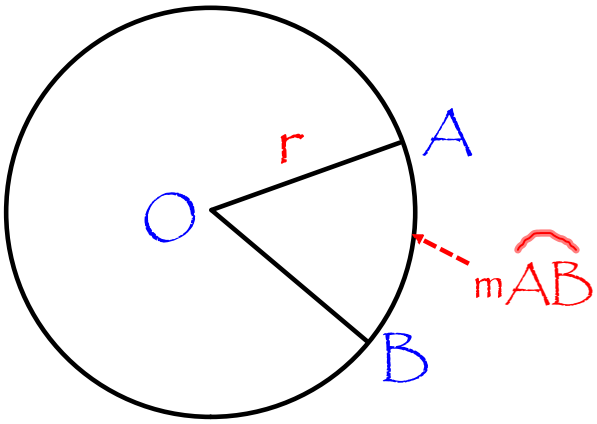
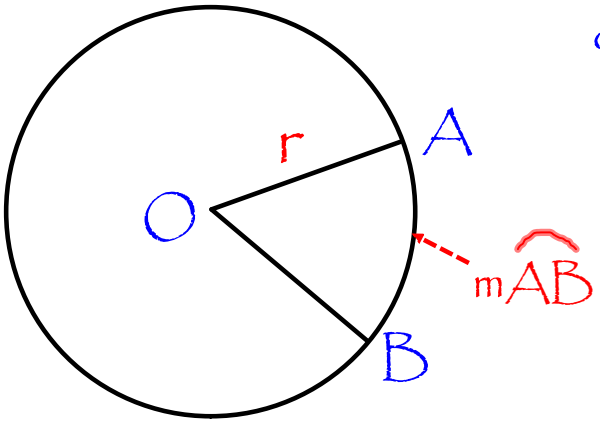


Area of a Sector

What info would you need to determine the area of sector AOB?

...the arc is a fraction of the whole circle...



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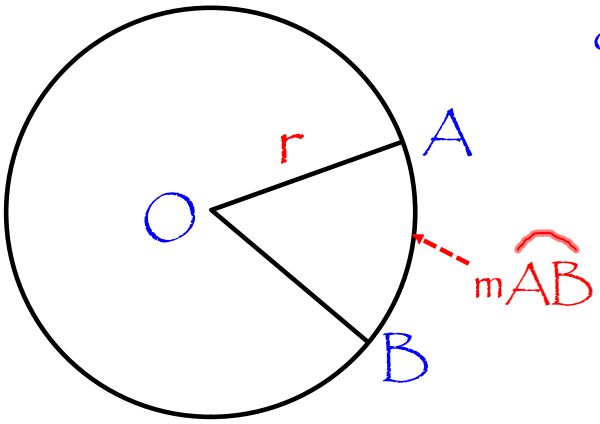
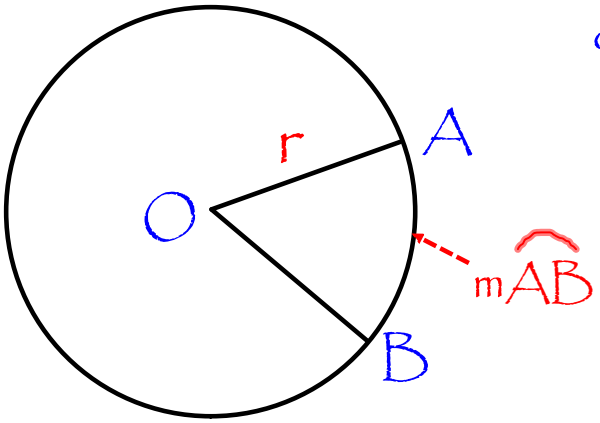


or $\frac{m\overset{\frown}{AB}}{360}$

Area of a Sector

What info would you need to determine the area of sector AOB?



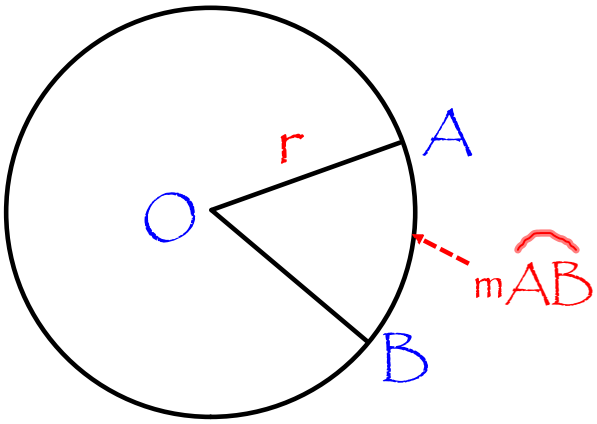
...the arc is a fraction of the whole circle...

or $\frac{m\overset{\frown}{AB}}{360}$

...the sector is a fraction of the circle's area...

Area of a Sector

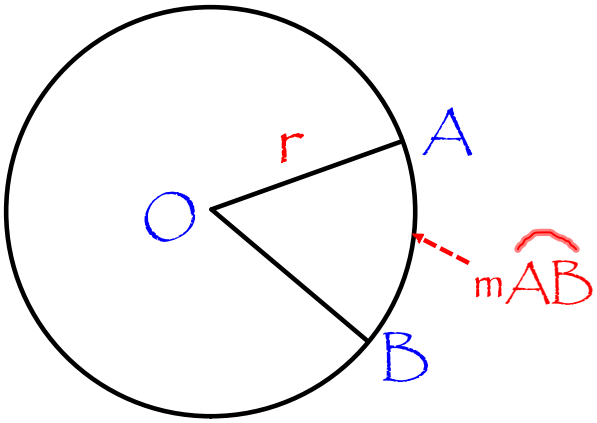
$$\text{Area of sector} = \frac{m\overset{\frown}{AB}}{360} \cdot (\text{area of } \odot)$$



Area of a Sector

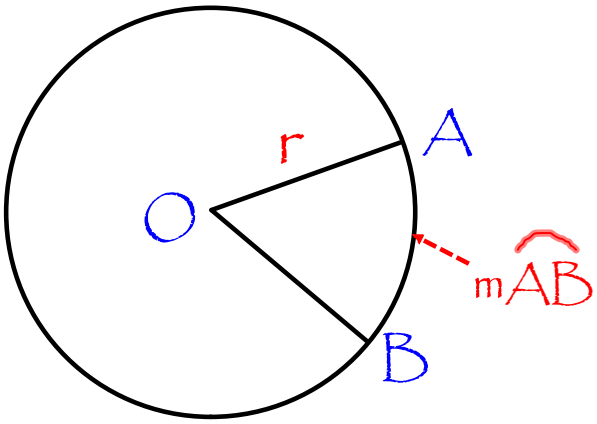
$$\text{Area of sector} = \frac{m\overset{\frown}{AB}}{360} \cdot (\text{area of } \odot)$$

$$A_{\odot} = \pi r^2$$



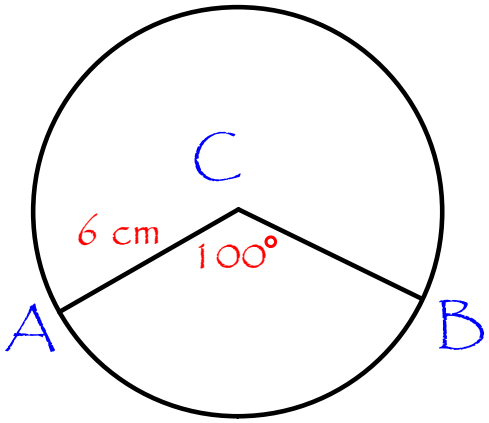
Thm 7-16: Area of a Sector of a circle

$$\text{Area of sector} = \frac{m\overset{\frown}{AB}}{360} \cdot \pi r^2$$



Example

Find area of sector ACB. Leave answer in terms of π



$m\overset{\frown}{AB} = 100$

$r = 6$

$A = \frac{m\overset{\frown}{AB}}{360} \cdot \pi r^2$

$= \frac{5\cancel{100}}{\cancel{18}\cancel{360}} \cdot \pi \cdot 6^2$

$= \frac{5}{1\cancel{18}} \cdot \cancel{36}^{2} \cdot \pi$

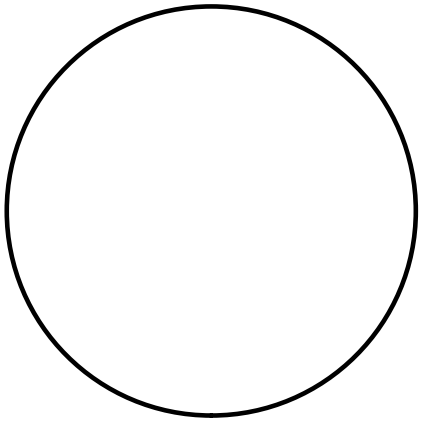
$= 10\pi$

Defn: Segment of a circle

Part of a sector between the arc and a segment joining its endpts.

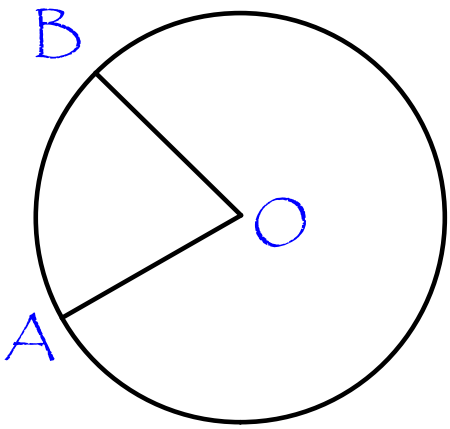
Defn: Segment

Part of a sector between the arc and a segment joining its endpts.



Defn: Segment

Part of a sector between the arc and a segment joining its endpts.



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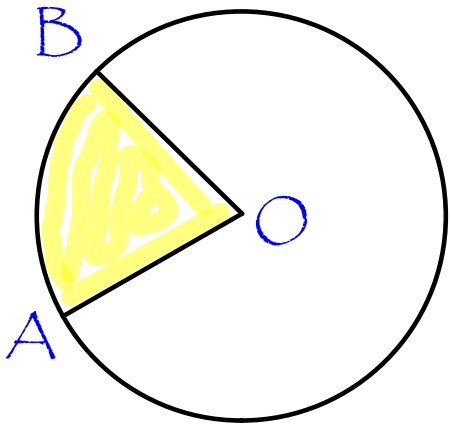

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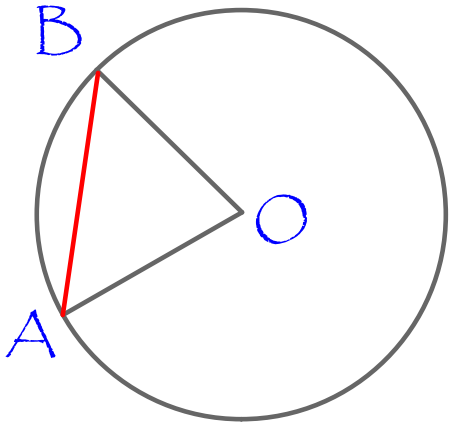

Defn: Segment

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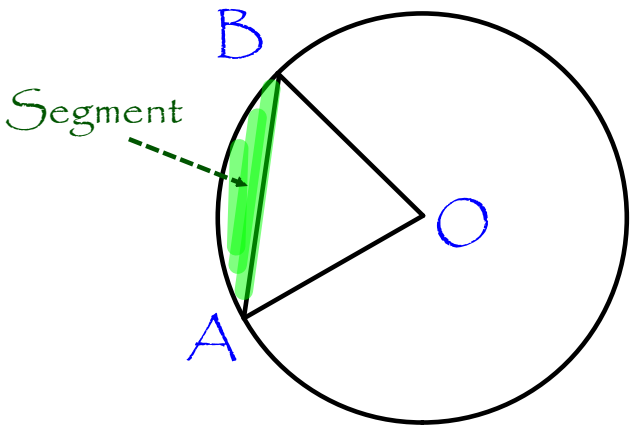
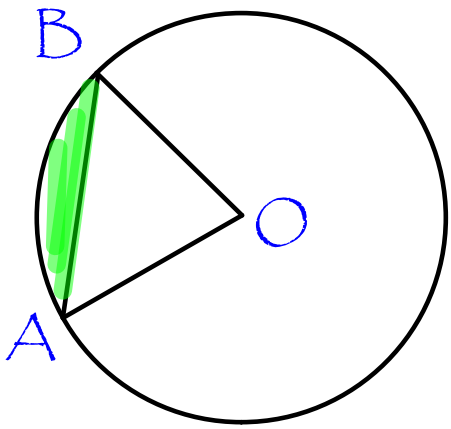
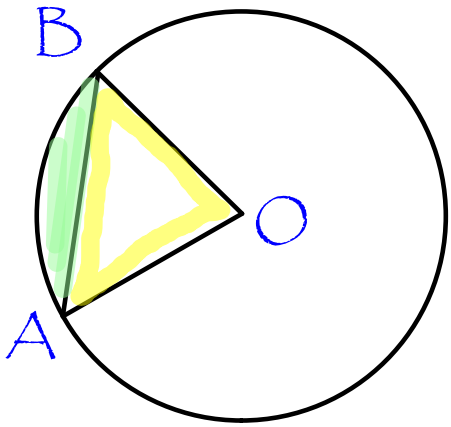


How would we determine the area of a segment?



How would we determine the area of a segment?

The segment and a Δ make up the sector...



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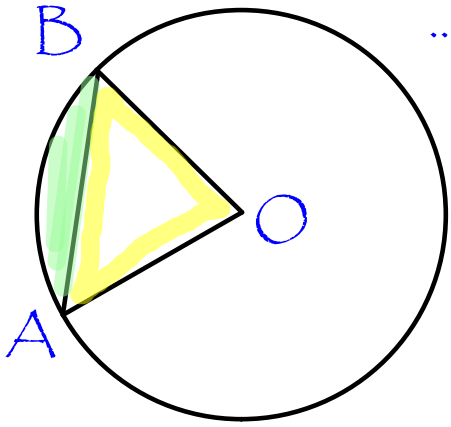
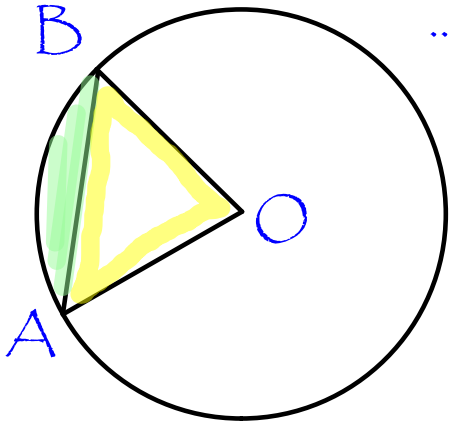


...so $A_{seg} = A_{sector} - A_{\Delta}$

How would we determine the area of a segment?

The segment and a Δ make up the sector...



...so $A_{seg} = A_{sector} - A_{\Delta}$

$$\frac{m\overset{\frown}{AB}}{360} \cdot \pi r^2$$

How would we determine the area of a segment?

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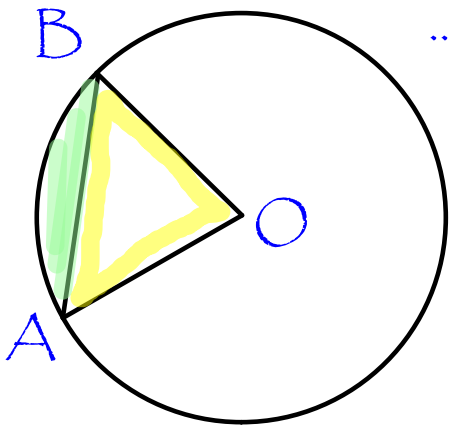

...so $A_{seg} = A_{sector} - A_{\Delta}$

$$\frac{m\overset{\frown}{AB}}{360} \cdot \pi r^2$$

$$\frac{1}{2} b\,h$$

How would we determine the area of a segment?

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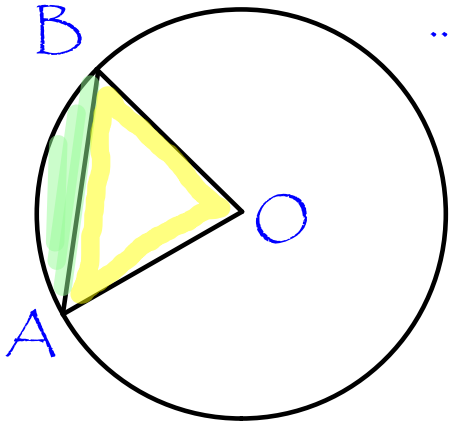


...so $A_{seg} = A_{sector} - A_{\Delta}$

$\frac{m\overset{\frown}{AB}}{360} \cdot \pi r^2$

$\frac{1}{2} b h$

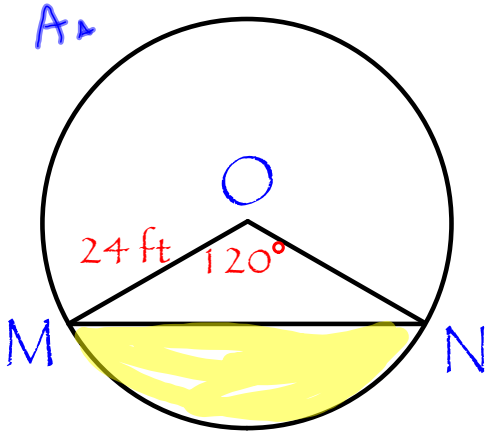
Example

Find the area of segment MON.

Round to nearest 10th.

$A = 192\pi - 144\sqrt{3}\ ft^2 \approx 353.8\ ft^2$

A_{sector} A_{Δ}



L7-7 Homework Problems

Pg 397 # 2-28 even,
30-32,
35-37,
40