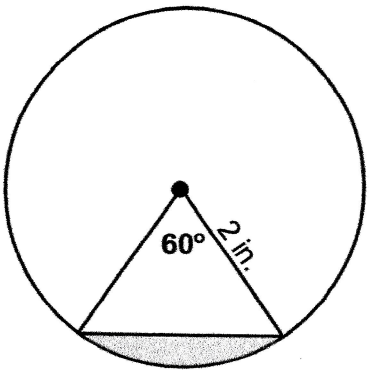
Bellwork Geo Thursday, April 23, 2020

1. Find the area of the shaded segment to the nearest hundredth.



2. Find the area of a regular 15-gon with a radius of 20 cm.. Round to the nearest hundredth.

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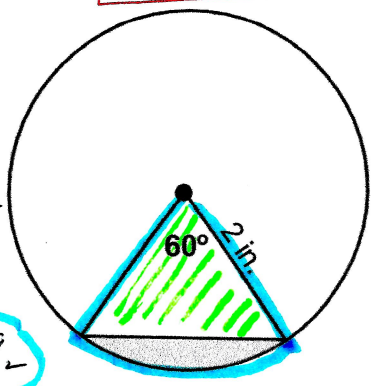
Answers

1. Find the area of the shaded segment to the nearest hundredth.



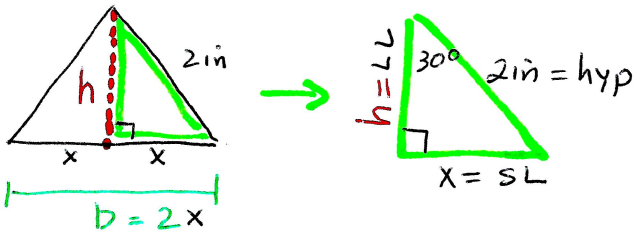
* 1st find area of the Sector
  - Area of circle $= \pi (2)^2 = 4\pi$ in^2
  - Area of Sector:

$$\frac{60^\circ}{360^\circ} = \frac{x}{4\pi}$$

$x = 2.09$ in^2

* 2nd find Area Δ

$A = \frac{1}{2} b \cdot h = \frac{1}{2}(2)(\sqrt{3})$



Area Δ $= \sqrt{3}$

Area of Segment = Area of Sector − Area Δ

$= 2.09 - \sqrt{3}$

$= 0.36$ in^2

$x = SL = hyp \div 2 = 2 \div 2 =$ 1 in

$b = 2x = 2(1) =$ 2 in

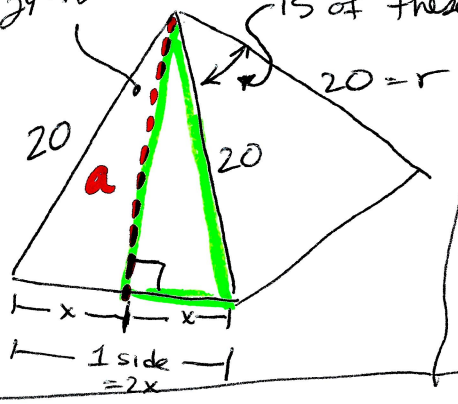
$h = LL = SL \cdot \sqrt{3} = 1 \cdot \sqrt{3}$

$h = \sqrt{3}$

2. Find the area of a regular 15-gon with a radius of 20 cm.. Round to the nearest hundredth.

$24^\circ \div 2 = 12^\circ$

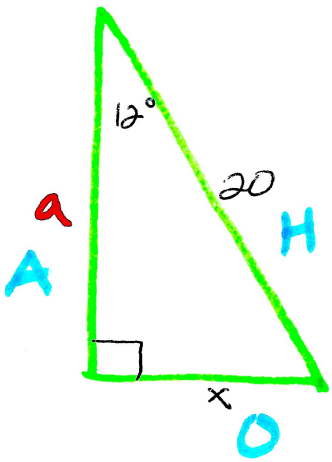
15 of these Δs means each central $\angle = \frac{360^\circ}{15} = 24^\circ$

① 

③ $A = \frac{1}{2} a \cdot P$

$= \frac{1}{2}(19.56)(124.8)$

$A = 1220.54$ cm^2

② 

For x

SOHCAHTOA

$\sin 12^\circ = \frac{x}{20}$

$x = 4.16$

1 side $= 2x = 2(4.16) = 8.32$

perimeter $= 15$(1 side) $= 15(8.32)$

$P = 124.8$ cm

For a

SOH CAH TOA

$\cos 12^\circ = \frac{a}{20}$

$a = 19.56$