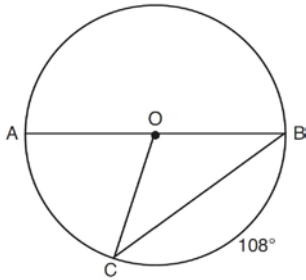


G.C.B.5: Sectors

- 1 In circle O , diameter \overline{AB} , chord \overline{BC} , and radius \overline{OC} are drawn, and the measure of arc BC is 108° .



Some students wrote these formulas to find the area of sector COB :

Amy $\frac{3}{10} \cdot \pi \cdot (BC)^2$

Beth $\frac{108}{360} \cdot \pi \cdot (OC)^2$

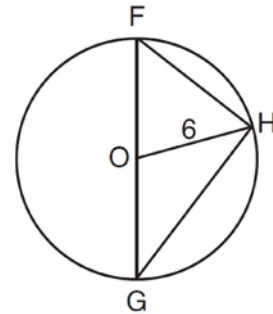
Carl $\frac{3}{10} \cdot \pi \cdot \left(\frac{1}{2}AB\right)^2$

Dex $\frac{108}{360} \cdot \pi \cdot \frac{1}{2}(AB)^2$

Which students wrote correct formulas?

- 1) Amy and Dex
- 2) Beth and Carl
- 3) Carl and Amy
- 4) Dex and Beth

- 2 Triangle FGH is inscribed in circle O , the length of radius \overline{OH} is 6, and $\overline{FH} \cong \overline{OG}$.



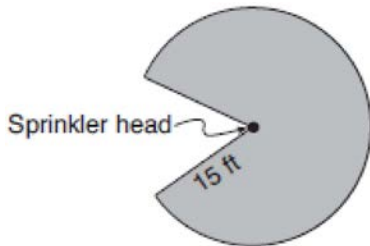
What is the area of the sector formed by angle FOH ?

- 1) 2π
- 2) $\frac{3}{2}\pi$
- 3) 6π
- 4) 24π

- 3 What is the area of a sector of a circle with a radius of 8 inches and formed by a central angle that measures 60° ?

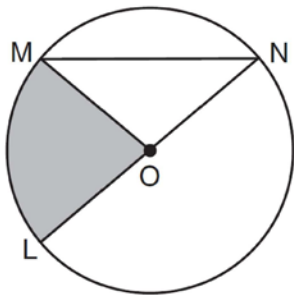
- 1) $\frac{8\pi}{3}$
- 2) $\frac{16\pi}{3}$
- 3) $\frac{32\pi}{3}$
- 4) $\frac{64\pi}{3}$

- 4 Cerise waters her lawn with a sprinkler that sprays water in a circular pattern at a distance of 15 feet from the sprinkler. The sprinkler head rotates through an angle of 300° , as shown by the shaded area in the accompanying diagram.



What is the area of the lawn, to the *nearest square foot*, that receives water from this sprinkler?

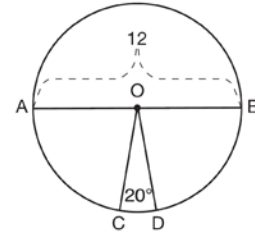
- 1) 79
 - 2) 94
 - 3) 589
 - 4) 707
- 5 In the diagram below of circle O , the area of the shaded sector LOM is 2π cm².



If the length of \overline{NL} is 6 cm, what is $m\angle N$?

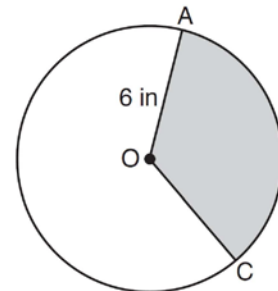
- 1) 10°
- 2) 20°
- 3) 40°
- 4) 80°

- 6 In the diagram below of circle O , diameter \overline{AB} and radii \overline{OC} and \overline{OD} are drawn. The length of \overline{AB} is 12 and the measure of $\angle COD$ is 20 degrees.



If $\widehat{AC} \cong \widehat{BD}$, find the area of sector BOD in terms of π .

- 7 In the diagram below of circle O , the area of the shaded sector AOC is 12π in² and the length of \overline{OA} is 6 inches. Determine and state $m\angle AOC$.



G.C.B.5: Sectors Answer Section

1 ANS: 2 REF: 081619geo

2 ANS: 3

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

REF: 081518geo

3 ANS: 3

$$\frac{60}{360} \cdot 8^2 \pi = \frac{1}{6} \cdot 64\pi = \frac{32\pi}{3}$$

REF: 061624geo

4 ANS: 3

The area of the entire circle is $15^2 \pi = 225\pi$. The shaded area has an area of $225\pi \times \frac{300}{360} \approx 589$

REF: 060716b

5 ANS: 3

$$\frac{x}{360} \cdot 3^2 \pi = 2\pi \quad 180 - 80 = 100$$

$$x = 80 \quad \frac{180 - 100}{2} = 40$$

REF: 011612geo

6 ANS:

$$\frac{\left(\frac{180 - 20}{2}\right)}{360} \times \pi(6)^2 = \frac{80}{360} \times 36\pi = 8\pi$$

REF: spr1410geo

7 ANS:

$$A = 6^2 \pi = 36\pi \quad 36\pi \cdot \frac{x}{360} = 12\pi$$

$$x = 360 \cdot \frac{12}{36}$$

$$x = 120$$

REF: 061529geo