

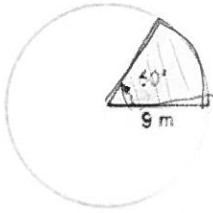
9.5 Sectors and Segments

NAME: Answer key

DATE: 5/13/16

Find the area of each sector. Leave your answer in terms of pi.

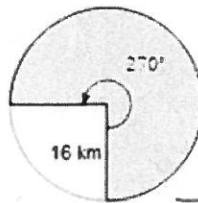
1)



$$A_{\text{sector}} = \% \text{ of } A_{\text{circle}} \\ = \left(\frac{60}{360}\right)(81\pi)$$

$$A = \frac{27\pi}{2} \text{ m}^2 \\ \approx 42.4115 \text{ m}^2$$

2)



$$\% \text{ of } A_0 \\ \left(\frac{270}{360}\right)(256\pi)$$

$$A = 192\pi \text{ km}^2 \\ \approx 603.1858 \text{ km}^2$$

3)  $r = 3 \text{ m}, \theta = 90^\circ$

$$A = \left(\frac{90}{360}\right)(9\pi)$$

$$A = \frac{9\pi}{4} \text{ m}^2 \approx 7.0686 \text{ m}^2$$

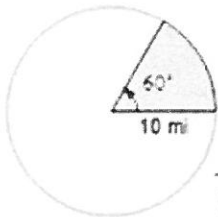
4)  $r = 12 \text{ m}, \theta = 60^\circ$

$$A = \left(\frac{60}{360}\right)(144\pi)$$

$$= 24\pi \text{ m}^2 \\ \approx 75.3982 \text{ m}^2$$

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

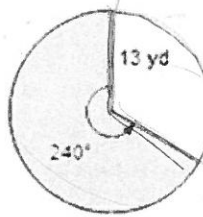
5)



$$A = \left(\frac{60}{360}\right)(100\pi)$$

$$= \frac{50\pi}{3} \text{ mi}^2 \\ \approx 52.3599 \text{ m}^2$$

6)



$$A = \left(\frac{240}{360}\right)(169\pi)$$

$$A = \frac{338\pi}{3} \text{ yd}^2 \\ \approx 353.9528 \text{ yd}^2$$

7)  $r = 4 \text{ cm}, \theta = 195^\circ$

$$A = \left(\frac{195}{360}\right)(16\pi)$$

$$A = \frac{26\pi}{3} \text{ cm}^2 \\ \approx 27.2271 \text{ cm}^2$$

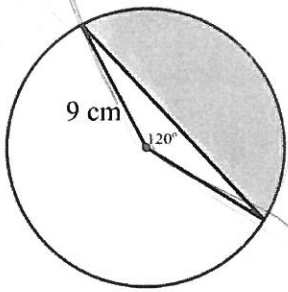
8)  $r = 10 \text{ cm}, \theta = 105^\circ$

$$A = \left(\frac{105}{360}\right)(100\pi)$$

$$A = \frac{175\pi}{6} \text{ cm}^2 \\ \approx 91.6298 \text{ cm}^2$$

Find the area of the segment of each circle. Label your answer! Round to the nearest tenth.

9)



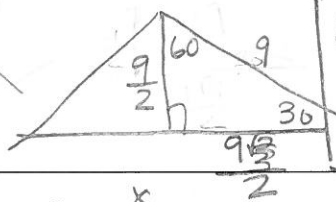
$$A_{\text{segment}} = A_{\text{sector}} - A_{\text{triangle}}$$

$$\left( \frac{120}{360} \cdot 81\pi \right) - \left( \frac{9\sqrt{3}}{2} \cdot \frac{9}{2} \right)$$

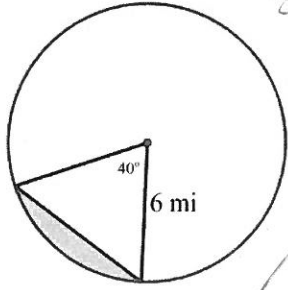
$$A = 27\pi - \frac{81\sqrt{3}}{4}$$

$$A \approx 49.74897$$

$$6 \sin 70 \cdot 6 \cos 70$$



10)



$$\sin 20 = \frac{x}{6}$$

$$x = 2.0521 \dots$$

$$\cos 20 = \frac{h}{6}$$

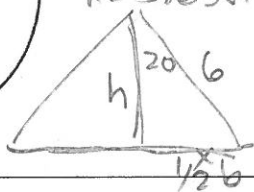
$$h = 5.6381$$

$$\text{Sector} - \text{Triangle}$$

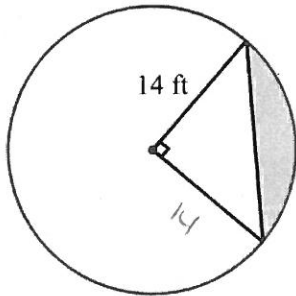
$$\frac{40}{360} \cdot 36\pi - (2.0521 \dots \cdot 5.6381 \dots)$$

$$4\pi - 11.5761769$$

$$A \approx 0.996194$$



11)



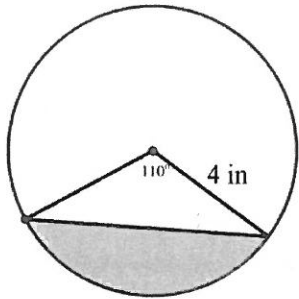
$$\text{Sector} - \Delta$$

$$\frac{90}{360} \cdot 196\pi - 7.14$$

$$A = 49\pi - 98 \text{ ft}^2$$

$$\approx 55.93804 \text{ ft}^2$$

12)



$$A = \text{Sector} - \Delta$$

$$\left( \frac{110}{360} \right) (16\pi) - (3.2766 \cdot 2.2943)$$

$$\frac{44\pi}{9} - 7.5175409 \dots$$

$$A \approx 7.841356 \text{ in}^2$$

**ANSWERS FOR CORRECTIVE ASSIGNMENT 9.5**

- |                                  |                          |                                 |                        |
|----------------------------------|--------------------------|---------------------------------|------------------------|
| 1) $\frac{27\pi}{2} \text{ m}^2$ | 2) $192\pi \text{ km}^2$ | 3) $\frac{9\pi}{4} \text{ m}^2$ | 4) $24\pi \text{ m}^2$ |
| 5) $52.4 \text{ mi}^2$           | 6) $354.0 \text{ yd}^2$  | 7) $27.2 \text{ cm}^2$          | 8) $91.6 \text{ cm}^2$ |
| 9) $49.7 \text{ cm}^2$           | 10) $1 \text{ mi}^2$     | 11) $55.9 \text{ ft}^2$         | 12) $7.9 \text{ in}^2$ |