Name_____ Date_____

10.5 – Arc and Areas of Circles

Name the following in $\odot G$.

1) the minor arcs

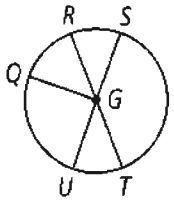
$\overset{\frown}{QR}, \overset{\frown}{QS}, \overset{\frown}{QU}, \overset{\frown}{QT}, \overset{\frown}{RS}, \overset{\frown}{ST}, \overset{\frown}{TU}$

2) the major arcs

$\overset{\frown}{TUS}, \overset{\frown}{TSU}, \overset{\frown}{UTR}, \overset{\frown}{UTQ}, \overset{\frown}{QTS}, \overset{\frown}{QTR}, \overset{\frown}{QST}, \overset{\frown}{STR}$

3) the semicircles

$\overset{\frown}{SQU}, \overset{\frown}{STU}, \overset{\frown}{TUR}, \overset{\frown}{TSR}$



Find the measure of each arc in $\odot B$.

4) $\overset{\frown}{GJ}$ 90°

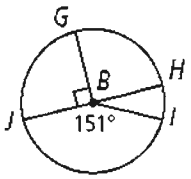
5) $\overset{\frown}{HI}$ 29°

6) $\overset{\frown}{HIJ}$ 180°

7) $\overset{\frown}{GJI}$ 241°

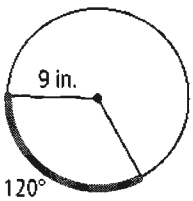
8) $\overset{\frown}{GHJ}$ 270°

9) $\overset{\frown}{GJH}$ 270°



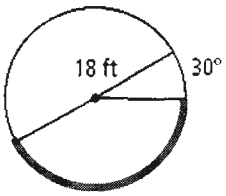
Find the length of each red arc. Leave your answer in terms of π.

24)



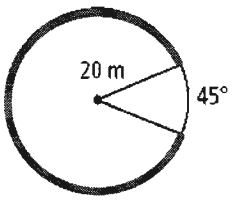
6π in.

25)



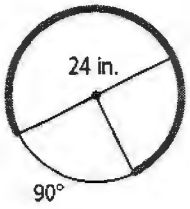
7.5π ft.

26)



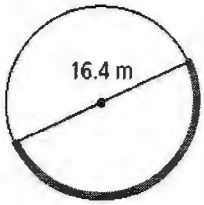
35π m

27)



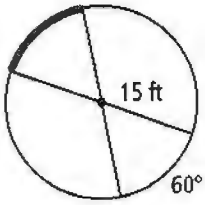
18π in.

28)



8.2π m

29)



5π ft

For the following:, leave your answers in terms of π.

30) If $d = 6.4$ cm, $A =$

$A = 10.24\pi$ cm^2

31) If $A = 529\pi$ cm^2, $r =$

$r = 23$ cm

32) If $C = 36\pi$ cm, $A =$

$A = 324\pi$ cm^2

For the following, round your answers to the nearest 0.01 unit.

33) If $r = 7.8$ cm, $A =$

$A \approx 191.04$ cm^2

34) If $A = 136.46$, $C =$

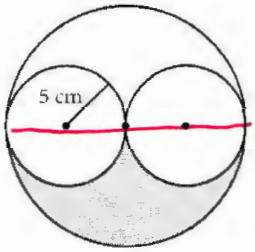
$C \approx 41.40$ u

35) If $d = 3.12$, $A =$

$A \approx 7.64$ u^2

In the following, the two smaller circles are congruent. Find the area of the shaded region.

36)



A = Big Semicircle − A small circle

$= \frac{1}{2}(\pi \cdot 10^2) - \pi \cdot 5^2$

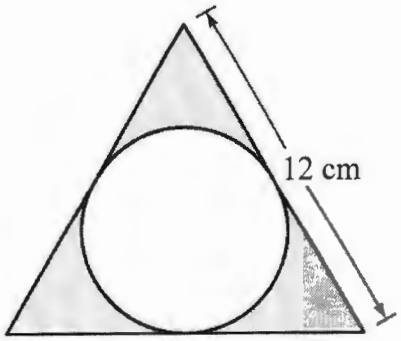
$= \frac{1}{2}(100\pi) - 25\pi$

$= 50\pi - 25\pi$

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

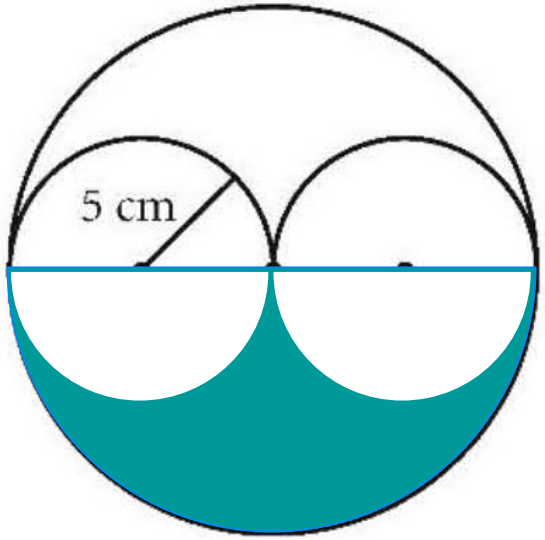
Refer to the figure of a circle inscribed in an equilateral triangle. Leave

37) Find the area of the inscribed circle.



38) Find the area of the shaded region.

36)



$$Area = Big\ Semicircle - Small\ circle$$

$$= \tfrac{1}{2}\pi R^2 - \pi r^2$$

$$= \tfrac{1}{2} \bullet \pi \bullet 10^2 - \pi \bullet 5^2$$

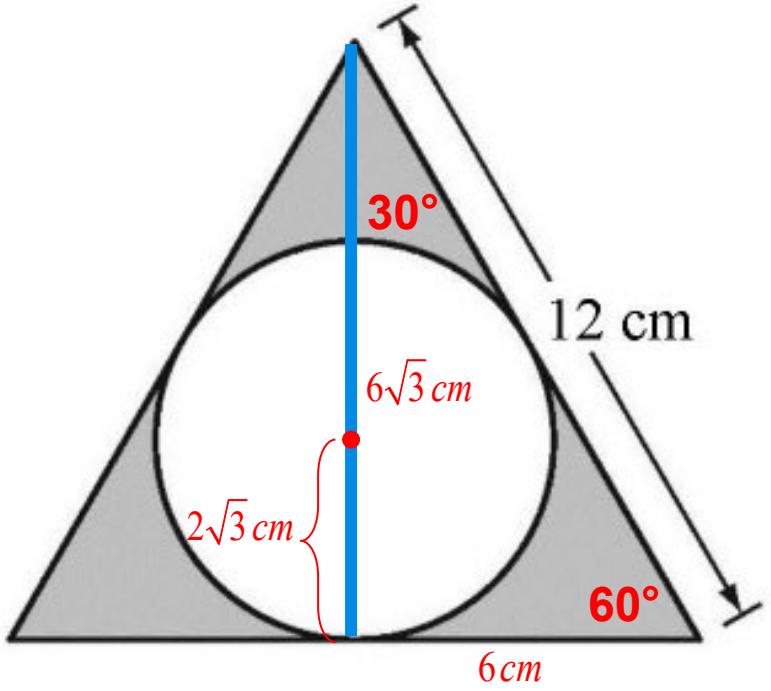
$$= \tfrac{1}{2} \bullet \pi \bullet 100 - \pi \bullet 25$$

$$= 50\pi - 25\pi$$

$$\boxed{= 25\pi\ cm^2}$$

Back

37) Find the area of the inscribed circle.



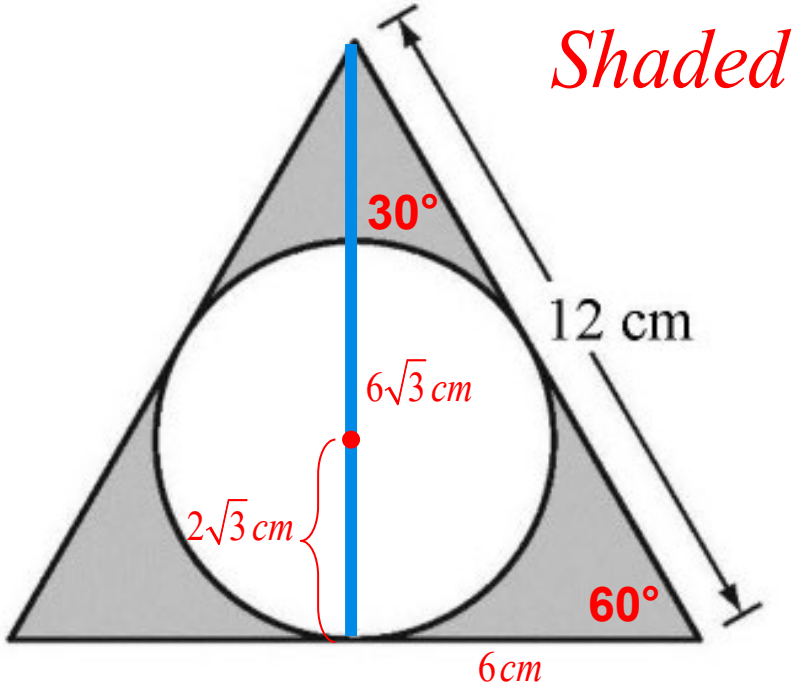
$$Area = \pi r^2$$

$$= \pi \bullet \left(2\sqrt{3}\right)^2$$

$$= 12\pi \ cm^2$$

Back

38) Find the area of the shaded region.



$$Shaded\ Area = \frac{1}{2}bh - \pi r^2$$

$$= \frac{1}{2} \bullet 12 \bullet 6\sqrt{3} - \pi \bullet \left(2\sqrt{3}\right)^2$$

$$= 36\sqrt{3} - 12\pi\ cm^2$$

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