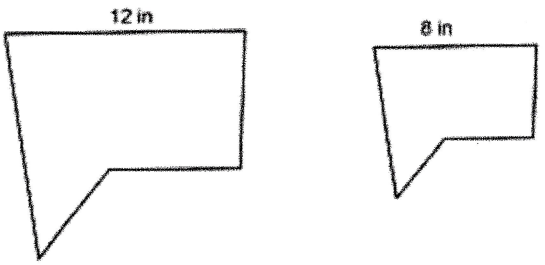
Geometry Review Practice for Ch 10 **Part 2** Spring 2020 SOLUTIONS

Round to the nearest hundredth when needed unless noted otherwise.

1. The given figures are similar.



similarity ratio: $\frac{B}{L} = \frac{12}{8}$

a) If the perimeter of the smaller figure is 200 in. find ther perimeter of the larger figure.

ratio of perimeters = sim. ratio $\frac{B}{L}$ $\Rightarrow$ $\frac{12}{8} = \frac{x}{200}$

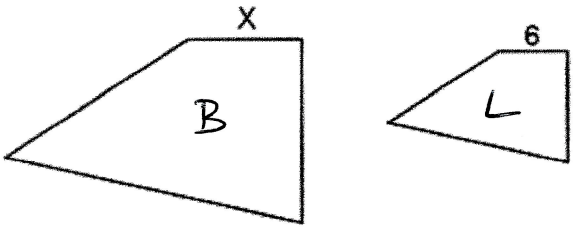
perim of Large = 300 in

b) If the area of the bigger figure is 640 in^2 find the area of the smaller figure.

ratio of areas = $(\text{sim ratio})^2 = (\frac{B}{L})^2$ $= (\frac{12}{8})^2 = \frac{144}{64}$ $\Rightarrow$ $\frac{144}{64} = \frac{640}{x}$

area of smaller = 284.44 in^2

2. The figures shown are similar.



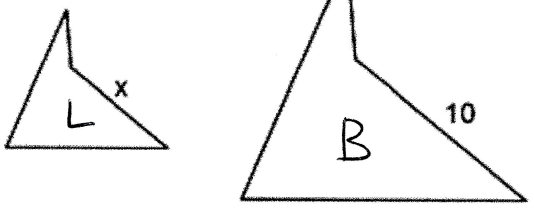
Sim ratio: $\frac{B}{L} = \frac{X}{6}$

Find the value of x if the perimeter of the smaller figure is 32 ft and the perimter of the 40 ft.

ratio of perim = sim ratio $\frac{B}{L}$ $\frac{x}{6} = \frac{40}{32}$

$x = 7.5$ ft

3. The figures shown are similar.



Sim ratio: $\frac{B}{L} = \frac{10}{x}$

Find the value of x if the area of the larger figure is 240 cm^2 and the area of the smaller figure is 96 cm^2.

ratio of areas = $(\text{sim ratio})^2 = (\frac{10}{x})^2 = \frac{100}{x^2}$

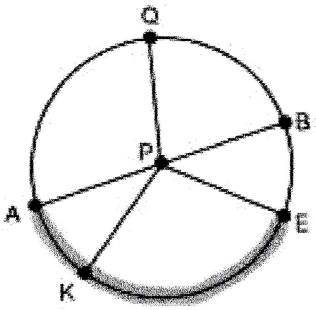
$\frac{B}{L}$ $\frac{100}{x^2} = \frac{240}{96}$

$x^2 = 40$

$x = \sqrt{40} = 6.32$ cm

4. Name the highlighted arcs in circle P. $\overline{AB}$ is a diameter in each circle.

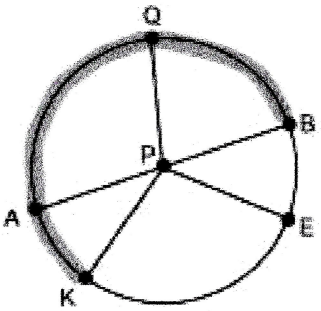
a)



2 ways

$\overset{\frown}{AE}$ or $\overset{\frown}{EA}$

b)

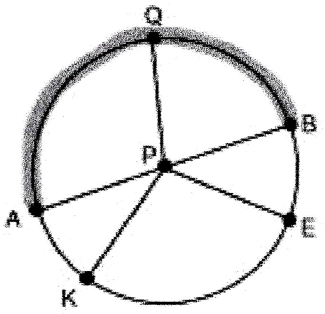


4 ways

$\overset{\frown}{KAB}$, $\overset{\frown}{KQB}$

$\overset{\frown}{BAK}$, $\overset{\frown}{BQK}$

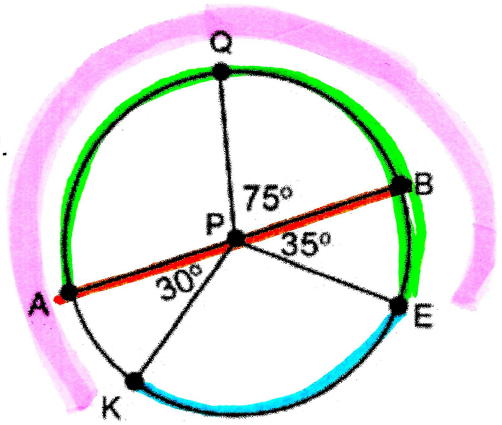
c)



2 ways

$\overset{\frown}{AQB}$ or $\overset{\frown}{BQA}$

5. Find the measure of each arc. $\overline{AB}$ is a diameter in circle P.



a) $m\overset{\frown}{KE}$ = $180-30-35$ $= 115°$

b) $m\overset{\frown}{EBA}$ = $180+35$ $= 215°$

c) $m\overset{\frown}{KQE}$ = $360-\overset{\frown}{KE}$ $= 360-115$ $= 245°$

6. Using the same circle as problem #5 fill in the blanks to make a true statement.

a) $\overset{\frown}{AK}+$ KB $=\overset{\frown}{AEB}$

b) $\overset{\frown}{EBA}+\overset{\frown}{AK}=$ EBK

c) $\overset{\frown}{QBK}-\overset{\frown}{EK}=$ QE

7. Use the circle from problem #5.

a) If $AB = 8$ ft. find the length of $\overset{\frown}{QB}$ to the nearest hundredth.

circumference $= \pi d$

$= 8\pi$

$\frac{75°}{360°} = \frac{x}{8\pi}$

Length of $\overset{\frown}{QB} = x =$ 5.24 ft

b). If the length of $\overset{\frown}{AK} = 20$ cm find the radius of the circle.

$m\overset{\frown}{AK} = 30°$

$\frac{30°}{360°} = \frac{20}{\text{circumf}}$

circumf $= 240$ cm

$\frac{2\pi r}{2\pi} = \frac{240\text{ cm}}{2\pi}$

$r = 38.20$ cm

8. The circumference of a circle is 40 in. Find the radius to the nearest hundredth.

$\frac{40\text{ in}}{2\pi} = \frac{2\pi r}{2\pi}$ $\quad r = 6.37\text{ in}$

9. The radius of a circle is 50 in. Find the area to the nearest hundredth.

$A = \pi r^2$ $\quad A = \pi(50\text{in})^2 = 7853.98\text{ in}^2$

10. The area of a circle is 275 cm^2. Find the diameter to the nearest hundredth.

$A = \pi r^2$ $\quad \frac{275}{\pi} = \frac{\pi r^2}{\pi}$ $\quad \sqrt{r^2} = \sqrt{\frac{275}{\pi}}$ $\quad r = 9.36$

$d = 2 \cdot r$ $\quad d = 18.72\text{ cm}$

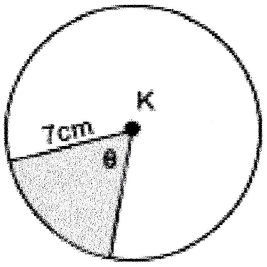
11. Use the circle from problem #5. $PE = 9$ ft. Find the area of the sector formed by $\overline{PQ}$, $\overline{PE}$ and $\overset{\frown}{QE}$ to the nearest hundredth.

$r = 9$ ft $\quad$ Area of circle $= \pi(9)^2 = 81\pi$ ft^2

$m\overset{\frown}{QE} = 75 + 35 = 110^\circ$

$\frac{110^\circ}{360^\circ} = \frac{x}{81\pi}$ $\quad x = 77.75\text{ ft}^2$

12. If the area of the shaded sector in circle K is 25 cm^2 find the measure of central angle θ to the nearest hundredth of a degree.

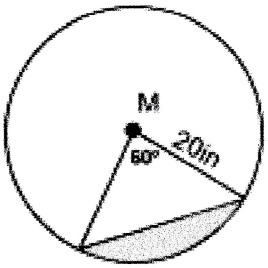


Area of circle $= \pi(7)^2 = 49\pi$

$\frac{\theta}{360} = \frac{25}{49\pi}$

$\theta = 58.47^\circ$

13. Find the area of the shaded segment in circle M to the nearest hundredth.

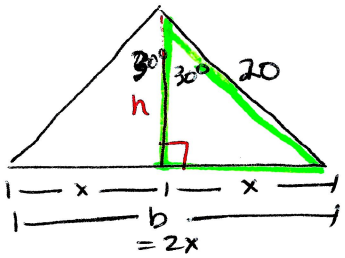


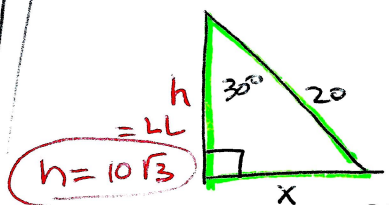
Area of circle $= \pi(20)^2 = 400\pi$

Area of Sector

$\frac{60}{360} = \frac{x}{400\pi}$ $\quad x = 209.44\text{ in}^2$

AREA of Δ $A = \frac{1}{2}(20\text{in})(10\sqrt{3}\text{ in})$ $\quad = 173.21\text{ in}^2$





$h = 10\sqrt{3}$ $\quad b = 2x = 2(10\text{in})$ $\quad b = 20\text{in}$

Area of segment = Area of Sector − Area of Δ

$= 209.44 - 173.21$

$= 36.23\text{ in}^2$