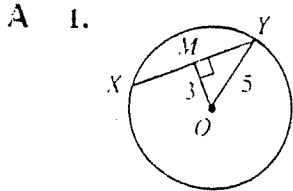


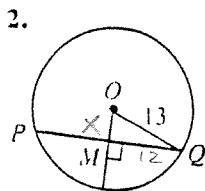
# KEY

Try these examples.

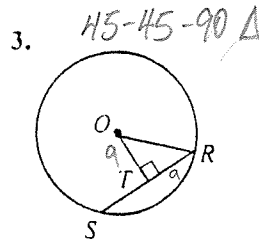
In the diagrams that follow,  $O$  is the center of the circle.



$XY = ?$  8

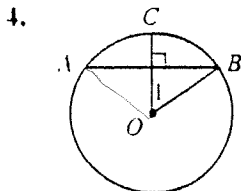


$PQ = 24$ ;  $OM = ?$  5

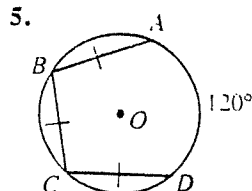


$OT = 9$ ;  $RS = 18$   
 $OR = ?$   $9\sqrt{2}$

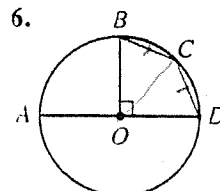
(2)  $x^2 + 12^2 = 13^2$



$m\widehat{ACB} = 110$ ;  
 $m\angle 1 = ?$   $55^\circ$

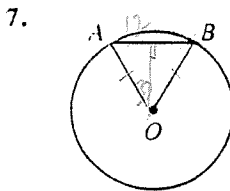


$m\widehat{BC} = ?$  80

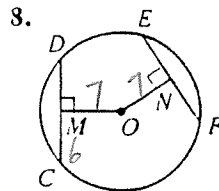


$m\widehat{CD} = ?$  45

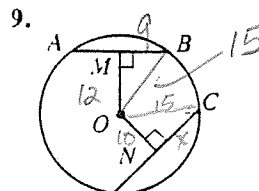
(5)  $\frac{240}{3} = 80$



$m\angle AOB = 60$ ;  
 $AB = 24$ ;  $OA = ?$  24



$OM = ON = 7$ ;  
 $CM = 6$ ;  $EF = ?$  12



$AB = 18$ ;  $OM = 12$ ;  
 $ON = 10$ ;  $CD = ?$   $10\sqrt{5}$

(4)  $10^2 + x^2 = 15^2$   
 $x^2 = 225 - 100$   
 $x = \sqrt{125} = 5\sqrt{5}$

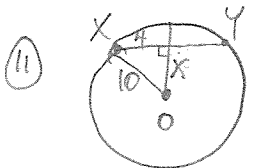
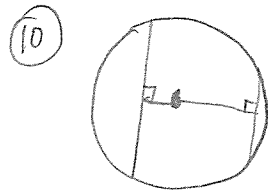
- Sketch a circle with two noncongruent chords. Is the longer chord farther from the center or closer to the center than the shorter chord?
- Sketch a circle  $O$  with radius 10 and chord  $\overline{XY}$  8 cm long. How far is the chord from  $O$ ?
- Sketch a circle  $Q$  with a chord  $\overline{RS}$  that is 16 cm long and 2 cm from  $Q$ . What is the radius of  $\odot Q$ ?
- Sketch a circle  $P$  with radius 5 cm and chord  $\overline{AB}$  that is 2 cm from  $P$ . Find the length of  $\overline{AB}$ .

CLOSER

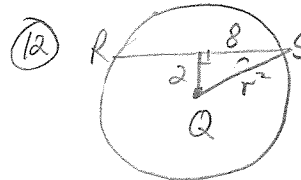
$2\sqrt{21}$  units

$2\sqrt{7}$  units

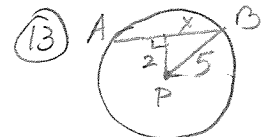
$2\sqrt{21}$  units



$4^2 + x^2 = 10^2$   
 $x^2 = 84$   
 $x = 2\sqrt{21}$

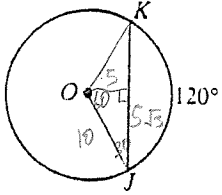


$2^2 + 8^2 = r^2$   
 $4 + 64 = r^2$   
 $\sqrt{68} = r$   
 $2\sqrt{17} = r$



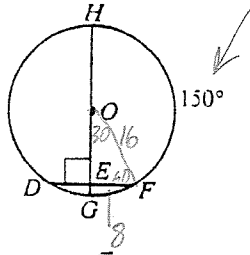
$2^2 + x^2 = 25$   
 $x^2 = 21$   
 $x = \sqrt{21}$

17.



If  $OJ = 10$ ,  $JK = ?$ .  $10\sqrt{3}$

18.



If  $OE = 8\sqrt{3}$ ,  $HG = ?$ .  $32$

21. Use trigonometry to find the measure of the arc cut off by a chord 12 cm long in a circle of radius 10 cm.

$$\tan \theta = \frac{6}{8} = \frac{3}{4}$$

$$\theta \approx 36.8 \approx 37^\circ$$



$$\text{arc} = 74^\circ$$

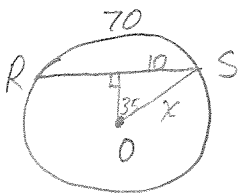
22. In  $\odot O$ ,  $m\widehat{RS} = 70$  and  $RS = 20$ . Use trigonometry to find the radius of  $\odot O$ .

$$\text{radius} \approx 17.4 \text{ units.}$$

25.  $A, B, C$  are points on  $\odot O$  such that  $\triangle ABC$  is equilateral. If the radius of the circle is 6, what is the perimeter of  $\triangle ABC$ ?

$$P = 9\sqrt{3}$$

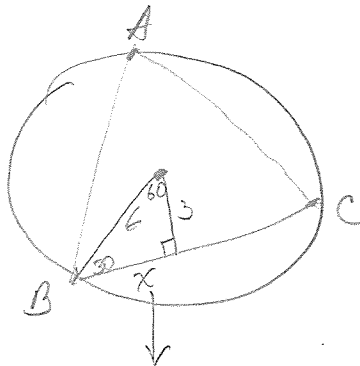
22



$$\sin 35 = \frac{10}{x}$$

$$x \approx 17.4344$$

25



$$x = 3\sqrt{3}$$

$$BC = 3\sqrt{3}$$

$$\begin{aligned} \text{Perimeter} &= 3(3\sqrt{3}) \\ &= 9\sqrt{3} \end{aligned}$$