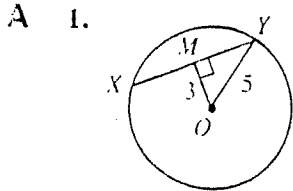


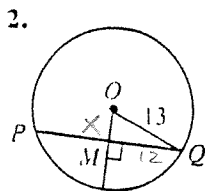
KEY

Try these examples.

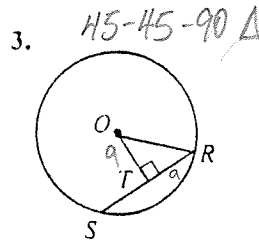
In the diagrams that follow, O is the center of the circle.



$XY = ?$ 8

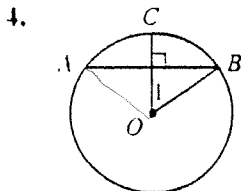


$PQ = 24$; $OM = ?$ 5

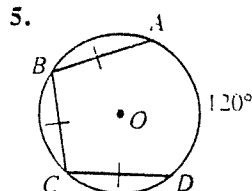


$OT = 9$; $RS = 18$
 $OR = ?$ $9\sqrt{2}$

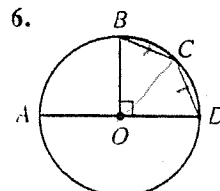
② $x^2 + 12^2 = 13^2$



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

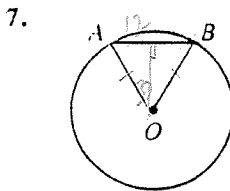


$m\widehat{BC} = ?$ 80

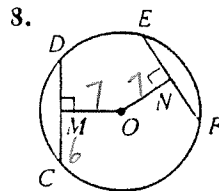


$m\widehat{CD} = ?$ 45

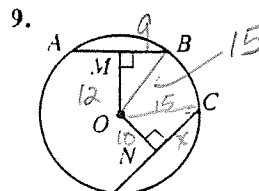
⑤ $\frac{240}{3} = 80$



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



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



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

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

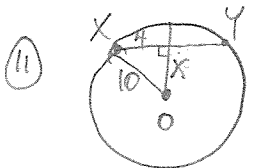
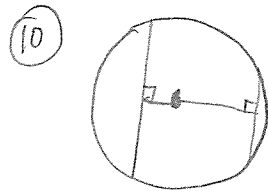
- Sketch a circle with two noncongruent chords. Is the longer chord farther from the center or closer to the center than the shorter chord?
- Sketch a circle O with radius 10 and chord \overline{XY} 8 cm long. How far is the chord from O ?
- Sketch a circle Q with a chord \overline{RS} that is 16 cm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

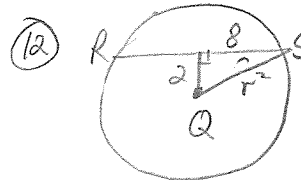
$2\sqrt{21}$ units

$2\sqrt{7}$ units

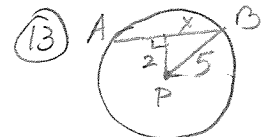
$2\sqrt{21}$ units



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

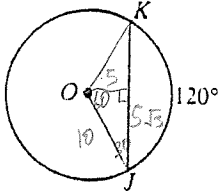


$2^2 + 8^2 = r^2$
 $4 + 64 = r^2$
 $\sqrt{68} = r$
 $2\sqrt{17} = r$



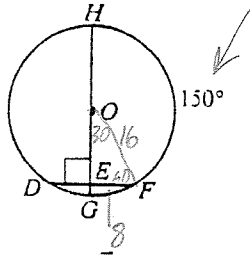
$2^2 + x^2 = 25$
 $x^2 = 21$
 $x = \sqrt{21}$

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.

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

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



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

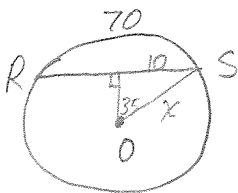
22. In $\odot O$, $m\widehat{RS} = 70$ and $RS = 20$. Use trigonometry to find the radius of $\odot O$.

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

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 $\triangle ABC$?

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

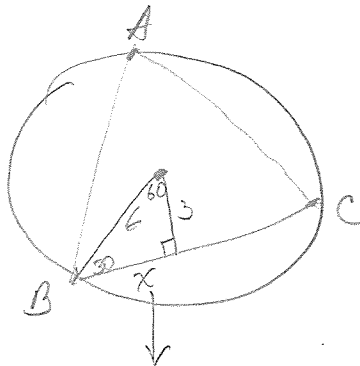
22



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

$$x \approx 17.4344$$

25



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

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

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