

## Lesson 2 Finding Unknown Measures of Angles

### Learning Outcome:

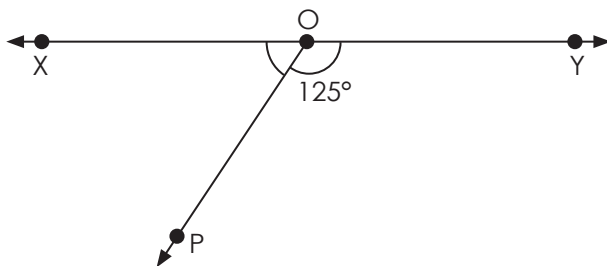
- Find unknown measures of angles involving angles on a line, angles at a point and vertically opposite angles

### Finding unknown measures of angles

#### Learn



- a) XOY is a line. Find the measure of  $\angle XOP$ .

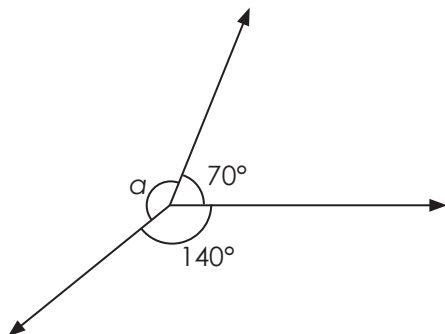


$$\begin{aligned} m\angle XOP &= 180^\circ - 125^\circ \\ &= 55^\circ \end{aligned}$$

The sum of angle measures on a line is  $180^\circ$ .



- b) Find the measure of  $\angle a$ .

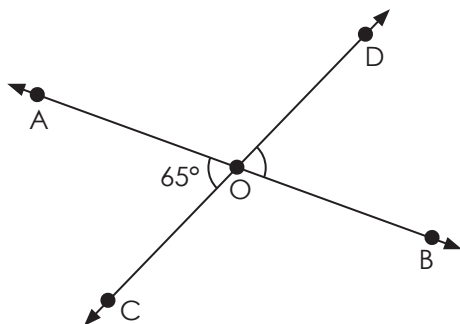


$$\begin{aligned} m\angle a &= 360^\circ - 70^\circ - 140^\circ \\ &= 150^\circ \end{aligned}$$

The sum of angle measures at a point is  $360^\circ$ .



- c) AOB and COD are lines. Find the measure of  $\angle DOB$ .



$$m\angle DOB = 65^\circ$$

Vertically opposite angles have equal measures.

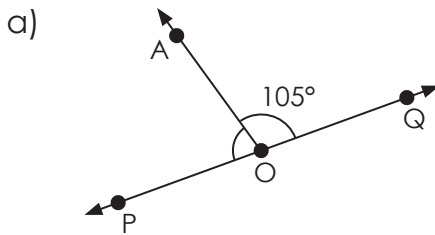


## Practice 2

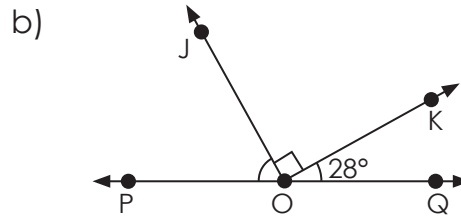
In this practice, the figures are not drawn to scale.



1. POQ is a line. Find the unknown angle measures.

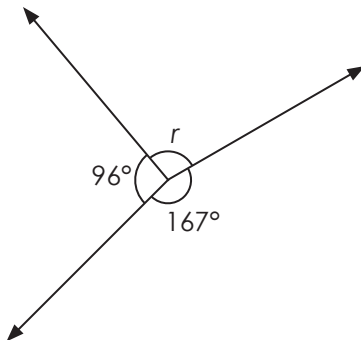


$$m\angle POA = \underline{\hspace{2cm}}$$



$$m\angle POJ = \underline{\hspace{2cm}}$$

2. Find the unknown angle measure.

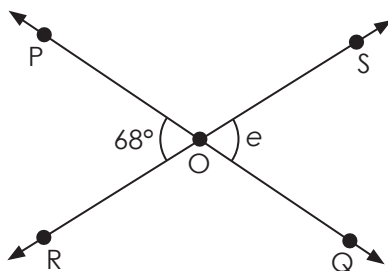


$$m\angle r = \underline{\hspace{2cm}}$$

$$m\angle r + 96^\circ + 167^\circ = 360^\circ$$



3. POQ and ROS are lines. Find the unknown angle measure.

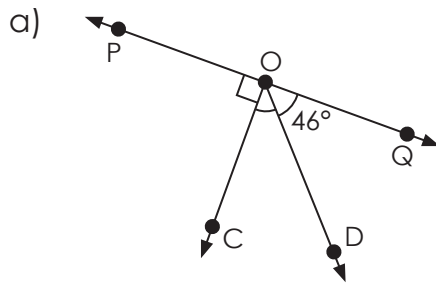


$$m\angle e = \underline{\hspace{2cm}}$$

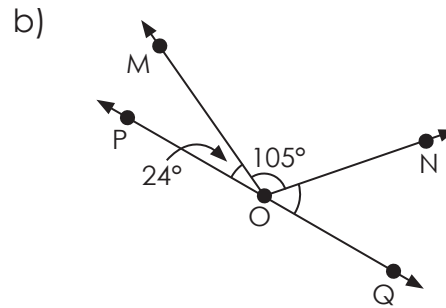
$$m\angle POS + 68^\circ = 180^\circ$$



4. POQ is a line. Find the unknown angle measures.

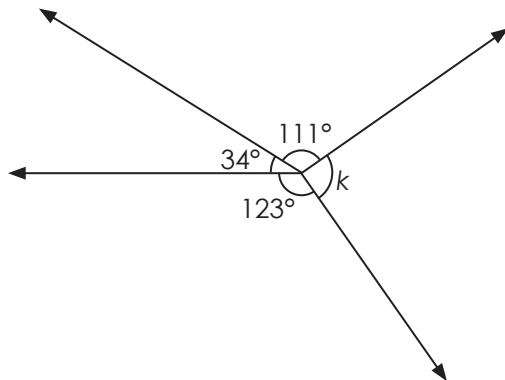


$$m\angle COD = \underline{\hspace{2cm}}$$



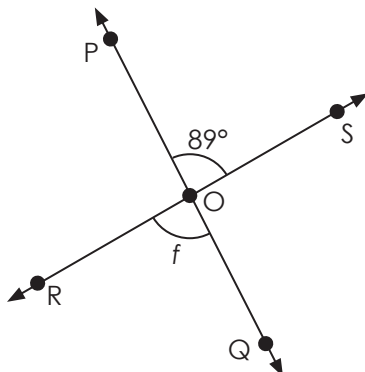
$$m\angle NOQ = \underline{\hspace{2cm}}$$

5. Find the unknown angle measure.



$$m\angle k = \underline{\hspace{2cm}}$$

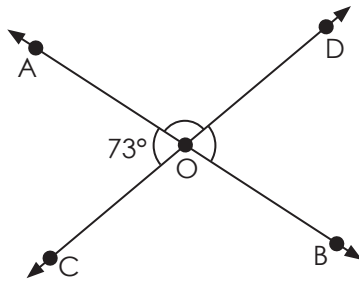
6. POQ and ROS are lines. Find the unknown angle measure.



$$m\angle f = \underline{\hspace{2cm}}$$



- a) AOB and COD are lines. Find the measures of  $\angle DOB$  and  $\angle AOD$ .



$$\begin{aligned} m\angle DOB &= m\angle AOC \\ &= 73^\circ \end{aligned}$$

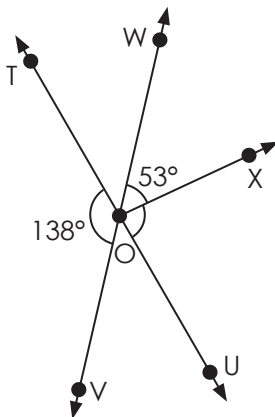
$$\begin{aligned} m\angle AOD &= 180^\circ - 73^\circ \\ &= 107^\circ \end{aligned}$$

$\angle AOC$  and  $\angle DOB$  are vertically opposite angles.

$\angle COA$  and  $\angle AOD$  are angles on a line.



- b) TOU and VOW are lines. Find the measure of  $\angle XOY$ .



$$\begin{aligned} m\angle TOV &= m\angle WOU \\ &= 138^\circ \end{aligned}$$

$$\begin{aligned} m\angle XOY &= 138^\circ - 53^\circ \\ &= 85^\circ \end{aligned}$$

$\angle TOV$  and  $\angle WOU$  are vertically opposite angles.

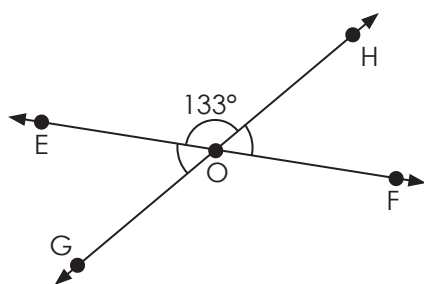


## Practice 3

In this practice, the figures are not drawn to scale.



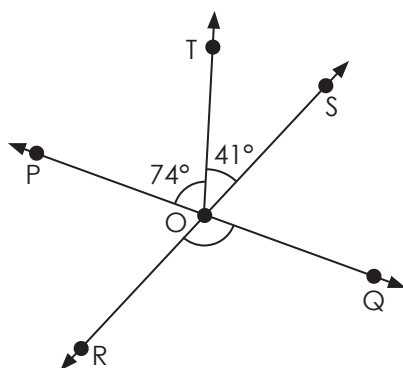
1. EOF and GOH are lines. Find the measures of  $\angle HOF$  and  $\angle EOG$ .



$$m\angle EOH + m\angle HOF = 180^\circ$$



2. POQ and ROS are lines. Find the measure of  $\angle ROQ$ .



3. AOB and COD are lines. Find the measures of  $\angle AOC$  and  $\angle COB$ .

