

## 8.2 Angles related to Intersecting Lines

A. The diagram consists of four straight lines. Identify and state all pairs of vertically opposite angles and adjacent angles.

SP8.2.1 TP1

*p and q*

*q and z*

*p and z*

*q and y*

*r and w*

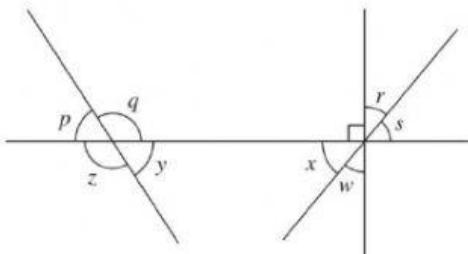
*y and z*

*s and x*

*r and s*

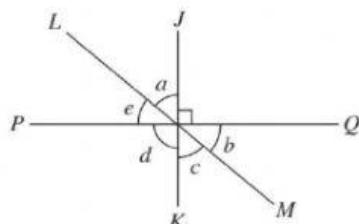
*w and x*

*p and y*



B. In the diagram, JK, LM and PQ are straight lines. Mark (✓) for the correct statement and (✗) for the incorrect statement.

SP8.2.1 TP1



1.  $b = e$  ( )

2.  $d = 90^\circ$  ( )

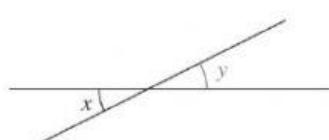
3.  $c = d$  ( )

C. On each of the following diagrams, mark and label the angle  $y$  using the label given:

SP8.2.1 TP2

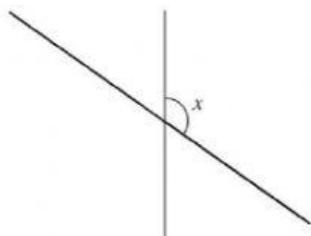
**Example**

*x and y are vertically opposite angles.*

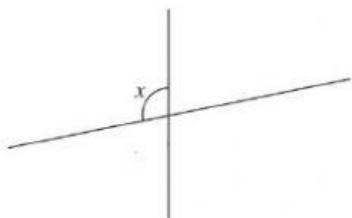


1. *x and y are vertically opposite angles.*

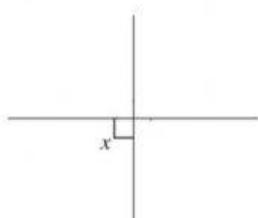
*y* *y* *y* *y* *y*



2. *x and y are adjacent angles.*



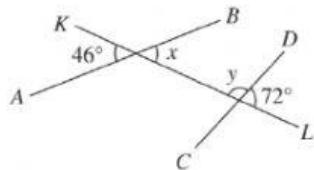
3. *x and y are adjacent angles.*



A. In each diagram,  $AB$ ,  $CD$  and  $KL$  are straight lines. Find the values of  $x$  and  $y$ .

SP8.2.2 TP3

**Example**

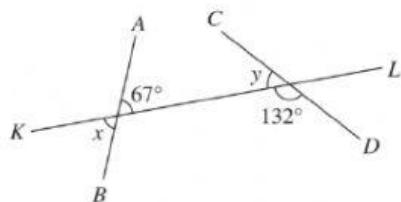


$$x = 46^\circ$$

$$y + 72^\circ = 180^\circ$$

$$y = 108^\circ$$

2.  $\angle JKL = 105^\circ$

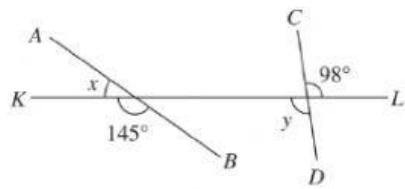


$$x = \quad ^\circ$$

$$y + \quad ^\circ = 180^\circ$$

$$y = \quad ^\circ$$

1.

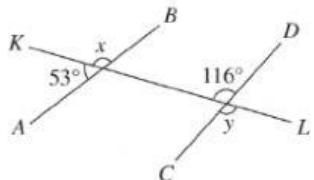


$$x + 145^\circ = \quad ^\circ$$

$$x = \quad ^\circ$$

$$y = \quad ^\circ$$

3.  $\angle RST = 45^\circ$



$$x + 53^\circ = \quad ^\circ$$

$$x = \quad ^\circ$$

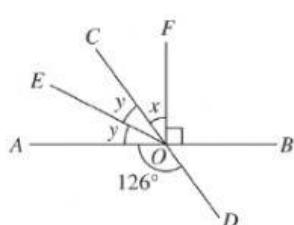
$$y = \quad ^\circ$$

B. Solve each of the following problems.

SP8.2.3 TP4

1. In the diagram,  $AOB$  and  $COD$  are straight lines.

2. In the diagram,  $JOK$  and  $MON$  are straight lines.  $\angle NOP$  and  $\angle NOQ$  are complementary angles.



Find the values of  $x$  and  $y$ .

$$x + \quad ^\circ = 126^\circ$$

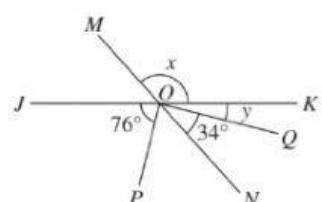
$$x = \quad ^\circ$$

$$y + y + 126^\circ = \quad ^\circ$$

$$y + 126^\circ = 180^\circ$$

$$2y = \quad ^\circ$$

$$y = \quad ^\circ$$



Calculate the value of  $x - y$ .

$$\angle NOP + 34^\circ = 90^\circ$$

$$\angle NOP = 56^\circ$$

$$x = 76^\circ + \angle NOP$$

$$= 76^\circ + \quad ^\circ$$

$$= \quad ^\circ$$

$$y + 34^\circ + 56^\circ + 76^\circ = \quad ^\circ$$

$$y + \quad ^\circ = 180^\circ$$

$$y = \quad ^\circ$$

$$x - y = \quad ^\circ - \quad ^\circ$$

$$= \quad ^\circ$$