

MATHEMATICS

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Class-7th

Chapter-5

Lines and Angles

Solution of
Exercise-5.2

-By:-A.K.Jha

"Mathematics"

Class - VII Ch - 05 Lines and Angles

'Ex - 5.2'

Q.1 Sol. (i) If $a \parallel b$, then $\angle 1 = \angle 5$.

By corresponding angle property,
It is true.

(ii) If $\angle 4 = \angle 6$, then $a \parallel b$.

By alternate interior angle property,
it is true.

(iii) If $\angle 4 + \angle 5 = 180^\circ$, then $a \parallel b$.

Interior angles on the same side
of the transversal are supplementary.

Q.3. To find unknown angles:

Sol. $p \parallel q$ and l is transversal.

$$\therefore e + 125^\circ = 180^\circ \text{ (Linear pair).}$$

$$e = 180^\circ - 125^\circ$$

$$= \underline{55^\circ}$$

$$\angle f = \angle e \text{ (V.O.A)}$$

$$\text{So, } \angle f = 55^\circ$$

$$\angle a = \angle e = 55^\circ \text{ (corresponding angles).}$$

$$\angle c = \angle a \text{ (V.O.A)} = 55^\circ$$

$$\angle d = 125^\circ \text{ (corresponding angles).}$$

$$\angle b = \angle d = 125^\circ.$$

Hence, $\underline{a = 55^\circ}$, $\underline{b = 125^\circ}$, $\underline{c = 55^\circ}$, $\underline{d = 125^\circ}$,
 $\underline{e = 55^\circ}$ and $\underline{f = 55^\circ}$.

Q.4. Find the value of x :

Sol. $\angle 1 + 110^\circ = 180^\circ$ (Linear pair).

$$\begin{aligned}\angle 1 &= 180^\circ - 110^\circ \\ &= \underline{70^\circ}.\end{aligned}$$

$$\therefore \angle x = \angle 1 \text{ (alternate angles).}$$

$$\underline{\angle x = 70^\circ = \angle 1.}$$

(ii) $l \parallel m$ and a is transversal.

$$\underline{x = 100^\circ} \text{ (corresponding angles).}$$

Q.5. Find the angles:-

(i) $\angle DGC$ (ii) $\angle DEF$.

Sol. (i) $AB \parallel DE$ and BC is transversal.

$$\therefore \underline{\angle DGC = \angle ABC}$$

(corresponding angles).

$$\text{But } \angle ABC = 70^\circ$$

$$\therefore \underline{\angle DGC = 70^\circ}.$$

(ii) $BC \parallel EF$ and DE is transversal

$$\therefore \underline{\angle DEF = \angle DGC} \text{ (corresponding angles).}$$

$$\therefore \angle DHC = 70^\circ$$

$$\therefore \angle DEF = 70^\circ$$

Q. 6. Decide whether l is parallel to m ?

Sol.

(i) l is not parallel to m .

Reason, $(126 + 44)^\circ = 170^\circ$; which is not equal to 180° .

(ii) l is not parallel to m .

Reason; $\angle 1 = 75^\circ$ (V.O.A) and $(75 + 75)^\circ = 150^\circ$ which is not equal to 180° .

(iii) l is parallel to m .

Reason: $\angle 1 + 57^\circ = 180^\circ$
(Linear pair)

$$\angle 1 = 180^\circ - 57^\circ = 123^\circ$$

(Alternate int. angles).

(iv) l is not parallel to m .

Reason: $\angle 1 = 72^\circ$ (V.O.A).

And $(72 + 98)^\circ = 170^\circ$ which is not equal to 180° .