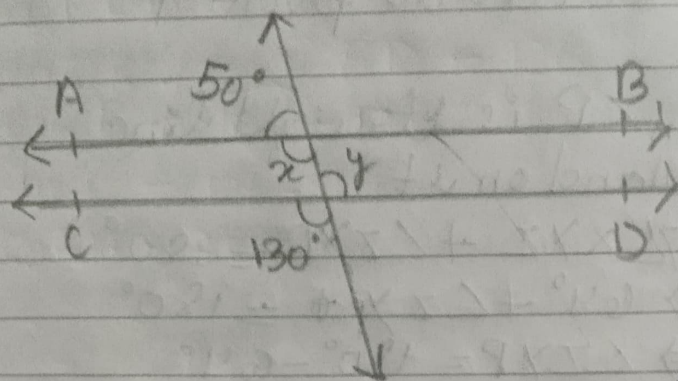
## Exercise: 6.2

① ans)



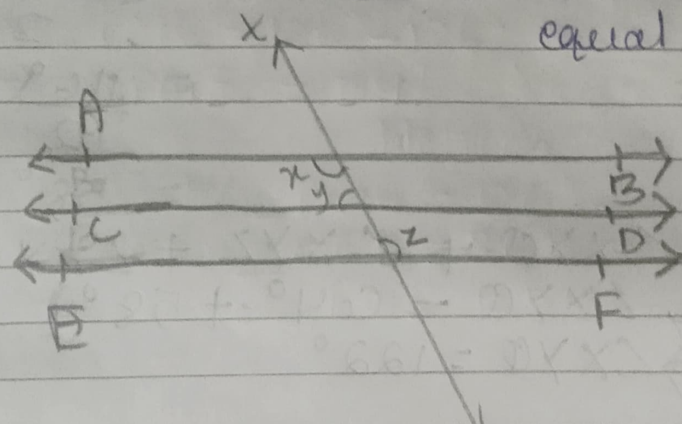

$\Rightarrow x + 50^\circ = 180^\circ$ $\quad y = 130^\circ$ (vertically opposite angle)

$\Rightarrow x = 180^\circ - 50^\circ$

$\Rightarrow x = 130^\circ$

$x = 130^\circ$ (alternet interior angle are equal so, AB ∥ CD)

② ans)




AB ∥ CD

CD ∥ EF So, AB ∥ EF

$y : z = 3 : 7$

Let $y = 3x$

$z = 7x$

AB ∥ CD

$x + y = 180^\circ$ (interior angle of same side of transversal are supplementary)

CD ∥ EF and t is a transversal So, $y + z = 180^\circ$

$\Rightarrow 3x + 7x = 180^\circ$

$\Rightarrow 10x = 180^\circ$

$\Rightarrow x = 18°$

$3x = 18 \times 3 = 54°$

$y = 54°$

$\Rightarrow x + y = 180°$

$\Rightarrow x + 54° = 180°$

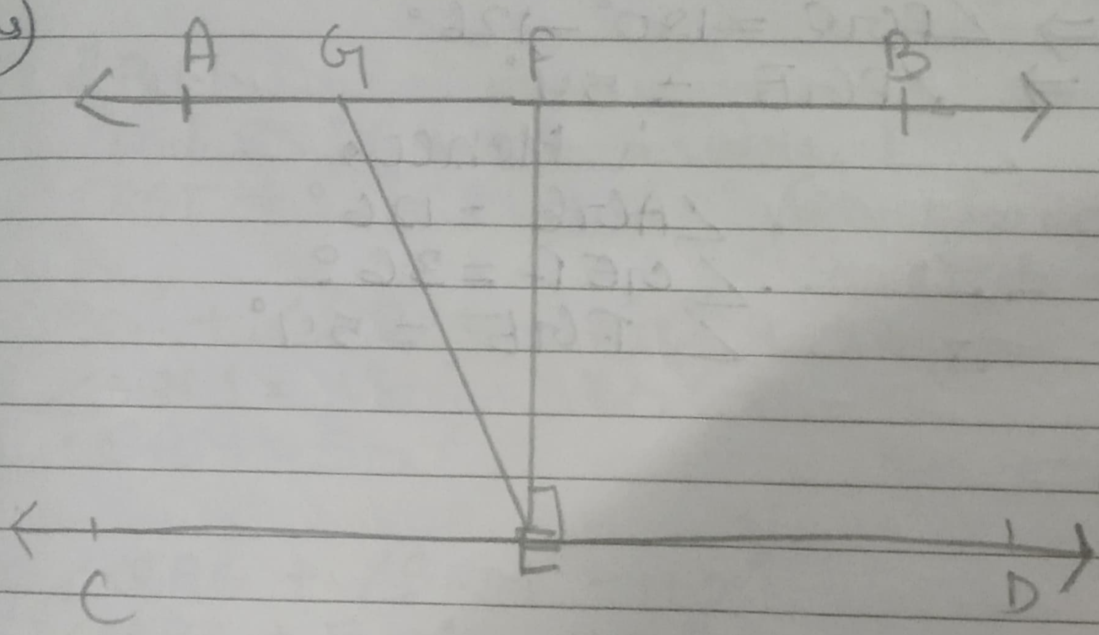
$\Rightarrow x = 180° - 54$

$\Rightarrow 126°$

Hence $x = 126°$

$y = 54°$

(3) ans)




$AB \parallel CD$

$EF \perp CD$

$\angle GED = 126°$

$AB \parallel CD$ and $GE$ is a transversal

so, $\angle AGE = \angle GED = 126°$ (alternet interior angle)

$\angle GED = 126°$

$EF \perp CD$

So, $\angle FED = 90^\circ$

$\Rightarrow \angle GEF + \angle FED = 126^\circ$

$\Rightarrow \angle GEF + 90^\circ = 126^\circ$

$\Rightarrow \angle GEF = 126 - 90$

$\Rightarrow \angle GEF = 36^\circ$

$AB \parallel CD$.

EG is a transversal

So, $\angle AGE + \angle FGE = 180^\circ$

$\Rightarrow 126^\circ + \angle FGE = 180^\circ$

$\Rightarrow \angle FGE = 180^\circ - 126^\circ$

$\Rightarrow \angle FGE = 54^\circ$

Hence,

$\angle AGE = 126^\circ$

$\angle GEF = 36^\circ$

$\angle FGE = 54^\circ$

4) ans)

PQ ∥ ST
∠PQR = 110°
∠RST = 130°
∠QRS = ?

PQ ∥ ST
PQ ∥ RM

and QR is a transversal
So, ∠PQR = ∠QRM = 110° (alternet interior angles of same side)

ST ∥ RM
and SR is the transversal
so, ∠RST + ∠SRM = 180° (interior angle of same side of transver

⇒ 130° + ∠SRM = 180°
⇒ ∠SRM = 180° − 130°
⇒ ∠SRM = 50°

⇒ ∠QRS + ∠SRM = 110°
⇒ ∠QRS + 50° = 110°
⇒ ∠QRS = 110° − 50
⇒ ∠QRS = 60°

5) ans)

AB || CD

PQ is a transnersal

$\angle APQ = \angle PQR$ (alternet interoir angle)

$\Rightarrow \angle APQ = 50^\circ$

$\Rightarrow \angle APQ = x^\circ$

$\Rightarrow 50^\circ = x^\circ$

$\Rightarrow x = 50^\circ$

$\angle PQR$ is a traingle

$\angle PRD = 127^\circ$ (extrenal angle of PQR)

Exterior angle = Sum of interior angle opposite angle)

$\Rightarrow 127^\circ = x + y$

$\Rightarrow x + y = 127^\circ$

$\Rightarrow 50^\circ + y = 127^\circ$

$\Rightarrow y = 127^\circ - 50^\circ$

$\Rightarrow y = 77^\circ$

6 ans)

Given, two plane mirror's PQ and RS are parralal to each other. So, PQ || RS

An incident ray AB strikes the mirror PQ at B the reflected ray moves along on i.e.

To prove: AB || CD

Proff :- Since BM ⊥ to RS and CM ⊥ to PQ and PQ || RS.

Therefore, CN ⊥ to RS

$\Rightarrow$ PM || CN    Thus, PM and CM are two paralal lines and BC is the transversal cuts them PC respectively.

$\Rightarrow \angle 2 = \angle 3$ (alternet interior angle)

$\Rightarrow \angle 1 = \angle 2$

$\Rightarrow \angle 3 = \angle 4$ } by laws of reflection

$\angle 1 + \angle 2$

$\Rightarrow \angle 1 + \angle 2 = \angle 2 + \angle 2$

$\Rightarrow \angle 1 + \angle 2 = 2\angle 2 \longrightarrow$ (i)

$\angle 3 = \angle 4$

$\Rightarrow \angle 3 + \angle 3 = \angle 4 + \angle 3$

$\Rightarrow 2\angle 3 = \angle 3 + \angle 4 \longrightarrow$ (ii)

Comparing (i) and (ii) we get $\angle 1 + \angle 2 = \angle 3 + \angle 4$

$\angle 2 = \angle 3$

$\Rightarrow 2\angle 2 = 2\angle 3$

$\Rightarrow \angle BCD = \angle ABC$

$\Rightarrow \angle ABC = \angle BCD$

Thus, lines AB and CD intersect the transversal BC such that ($\angle ABC = \angle BCD$)

Alternet angles are equal so that AB || CD