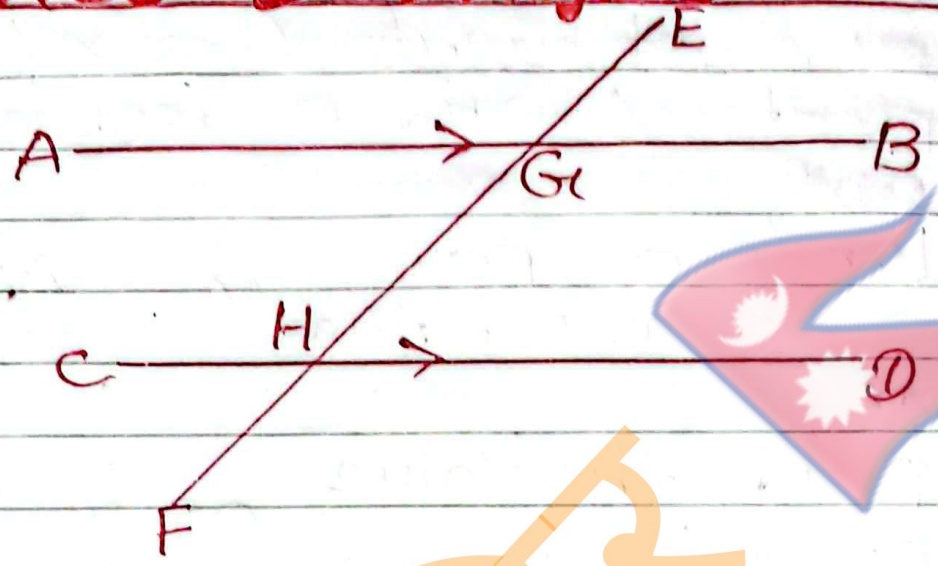
BLE VVI questions

For Q.N. 9 (Fixed questions).

Lines & Angles

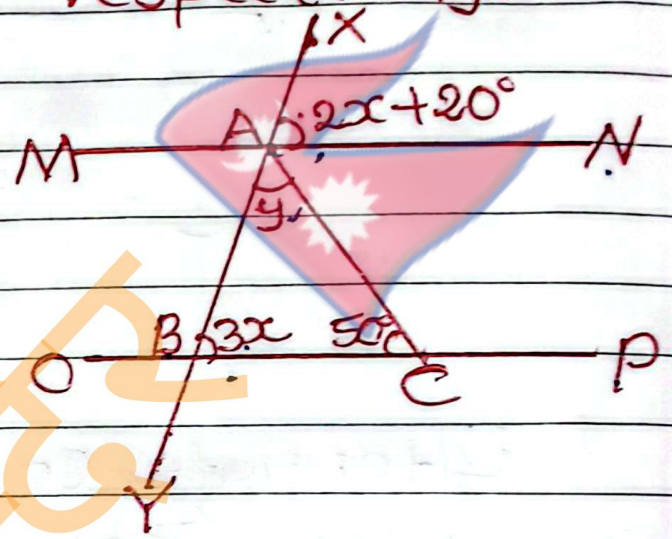


Alternate angles (Z)	Co-interior angles (I)	Corresponding angles (F)
* ∠BGH & ∠CHG	* ∠BGH & ∠GHD	* ∠BGE & ∠DHG
* ∠AGH & ∠GHD	* ∠AGH & ∠CHG	* ∠BGH & ∠DHF
		* ∠AGE & ∠CHG
		* ∠AGH & ∠CHF

* Alternate angles are equal.
* Corresponding angles are equal.
* Sum of a pair of co-interior angles = 180°

VV.I

Q.1 In the figure, two parallel lines MN and OP are intersected by a straight line XY at the points A and B respectively.



(a) Write a pair of corresponding angles.

(b) Find the value of x.

(c) Compare ∠CAB and ∠ABC.

⇒ Solⁿ.

(a) A pair of corresponding are:-
∠BAN and ∠PBY

(b) Here,
$3x = 2x + 20°$ [∵ Corresponding angles]

or, $3x - 2x = 20°$

$\therefore x = 20°$

Thus,
the value of x is 20°

(c) Here,

In ΔABC,

$y + 3x + 50^\circ = 180^\circ$

or, $y + 3 \times 20^\circ + 50^\circ = 180^\circ$

or, $y + 60^\circ + 50^\circ = 180^\circ$

or, $y = 180^\circ - 110^\circ$

$\therefore y = 70^\circ$

Now,

$\angle CAB = y = 70^\circ$

$\angle ABC = 3x = 3 \times 20^\circ = 60^\circ$

Thus,

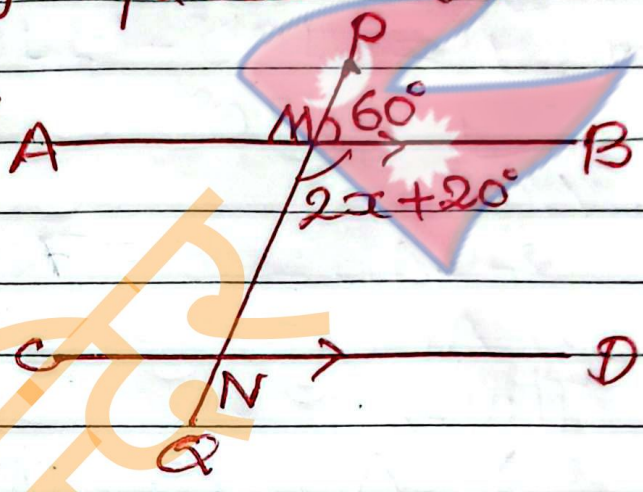
$\angle CAB$ is greater than $\angle ABC$ by

$= 70^\circ - 60^\circ$

$= 10^\circ$.

VVI

Q.2. In the figure, PQ intersects the straight lines AB and CD at the point M and N resp. observe the figure and answer the following questions.



(a) Write a pair of alternate angle.

(b) Find the value of x

(c) At what value of ∠DNM the given straight lines AB and CD will becomes parallel?

⇒ 80°.

(a) A pair of alternate angle are:-

∠BMN and ∠MNC

(b) Here,

$2x+20°+60° = 180°$ [∵ Supplementary angle]

$\Rightarrow 2x + 80° = 180°$

$\Rightarrow 2x = 180° - 80°$

or, $2x = 100^\circ$

or, $x = \frac{100^\circ}{2}$

$\therefore x = 50^\circ$

Thus, the value of x is 50°.

(c) Here,

$\angle DNM = \angle BMP$ [$\because$ corresponding angle]

$\therefore \angle DNM = 60^\circ$

Thus,

the value of $\angle DNM$ is 60° then the given straight lines AB and CD will become parallel.

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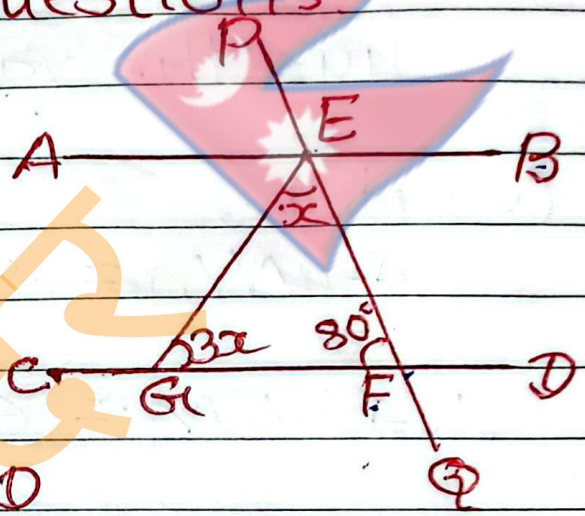
Q.3. In the figure, PQ intersects straight lines AB and CD at point E and F respectively. Observe the figure and answer the following questions.



(a) Write a pair of co-interior angle.

(b) Find the value of x

(c) At what value of ∠BEF the lines AB and CD become parallel.

⇒ Solⁿ.

(a) A pair of co-interior angle are:-

∠BEF and ∠EFD

(b) Here,

In △EGF

$x + 3x + 80° = 180°$

or, $4x = 180° - 80°$

or, $4x = 100°$

or, $x = \frac{100°}{4}$

$\therefore x = 25°$

Thus,
the value of x is 25°.

(c) Here,
$\angle BEF = \angle EFG$ [∵ Alternate angle]

$\therefore \angle BEF = 80°$

Thus,
the value of $\angle BEF$ is 80° then the lines AB and CD become parallel.

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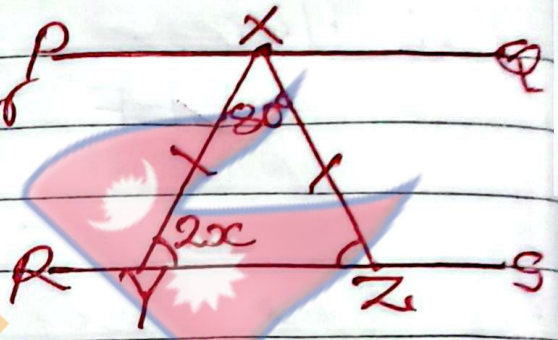
Q.4. In the figure, when XY and XZ meet the line segments PQ and RS, a ΔXYZ is formed. Observe the given figure and answer the following questions.



(a) Write the relation between $\angle XYZ$ and $\angle XZY$.

(b) Find the value of x.

(c) At which value of $\angle PXY$, will the lines PQ and RS be parallel?

⇒ Sol^{n}.

(a) The relation between $\angle XYZ$ and $\angle XZY$ are equal to each other because the base angles of an isosceles triangles are equal.

(b) Here,

In ΔXYZ, $\angle X + \angle Y + \angle Z = 180°$

$2x + 2x + 80° = 180°$

or, $4x = 180° - 80°$

or, $4x = 100°$

$\therefore x = \frac{100^\circ}{4}$

$\therefore x = 25^\circ$

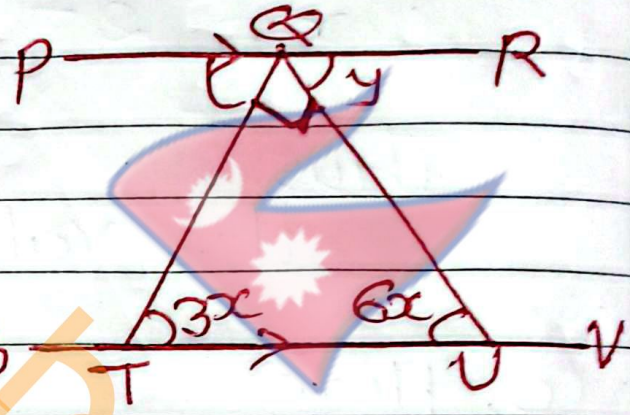
Thus,
the value of x is 25°.

(c) Here,
$\angle PXY = \angle XYZ$ [$\because$ Alternate angle]
$= 2x$
$= 2 \times 25^\circ$
$\therefore \angle PXY = 50^\circ$

Thus,
the value of $\angle PXY$ is 50° then the lines PQ and RS will be parallel.

Q.5. Study the given figure, answer the following questions:-

(a) Find the value of x and y.



(b) Compare the angle x and y.

⇒ Solⁿ.

(a) Here,

In $\triangle QTU$

$3x + 6x + 90° = 180°$

or, $9x = 180° - 90°$

or, $x = \frac{90°}{9}$

$\therefore x = 10°$ Ans

Also,

$y = 6x$ [$\because$ Alternate angle]

$= 6 \times 10°$

$= 60°$ Ans

(b) The value of y is greater than the value of x by

$= 60° - 10°$

$= 50°$

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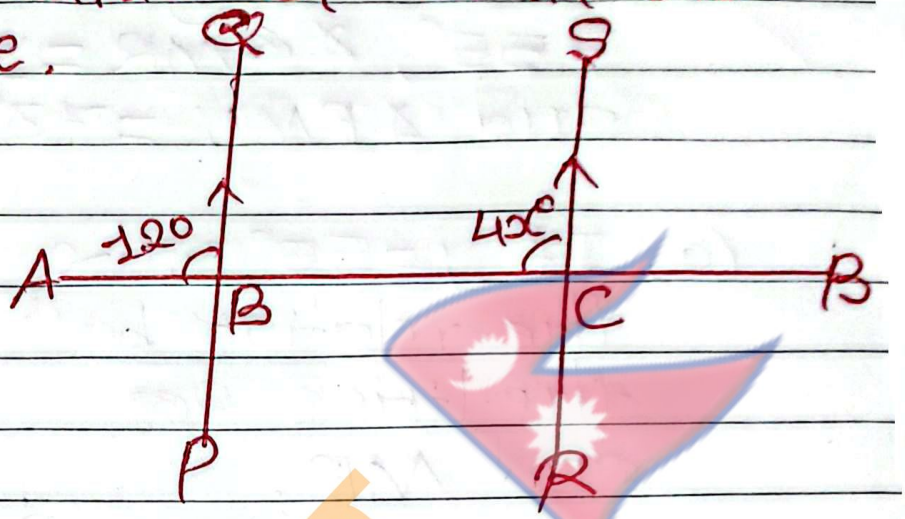
Q6. Find the value of x in the given figure.



⇒ Sol^{n}.

Here,

$4x° = 120°$ [∵ Corresponding angle]

or, $x° = \frac{120°}{4}$

$\therefore x = 30°$

Thus,

the value of x is 30°

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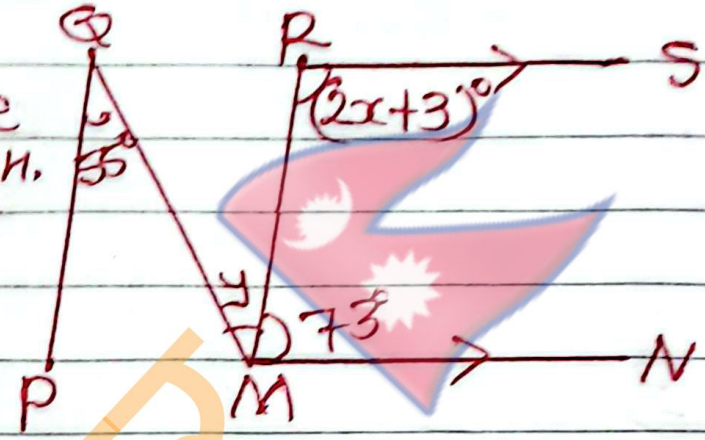
Q7. In the figure, RS || MN, ∠PQM = 55°, ∠QMR = y, ∠MRS = (2x+3)° and ∠RMN = 73°



(a) If y = 55°, write the relation bet^n. the lines PQ and MR.

(b) Find the value of x

⇒ Sol^n.

(a) Here,
If y = 55°, then the relation between the lines PQ and MR are parallel.

(b) Here,
2x + 3° = 73° [∵ co-interior angle]

or, 2x = 73° − 3°

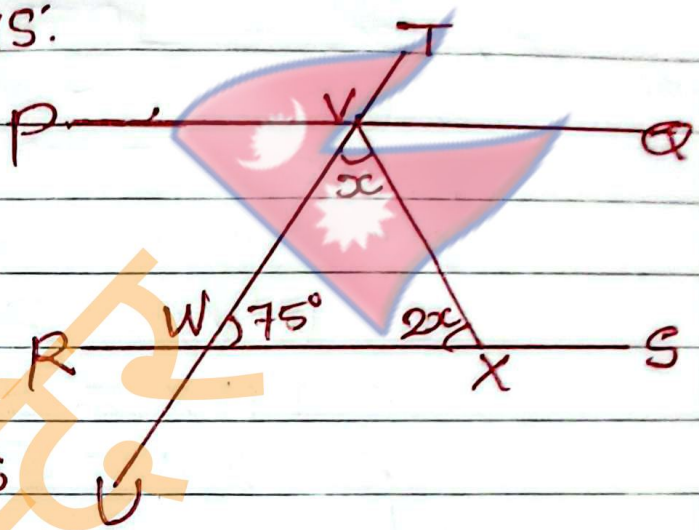
or, 2x = 70°

or, $x = \frac{70°}{2}$

∴ x = 35° Ans

VVI

Q.8. In the figure, TU intersects the straight lines PQ and RS at a point V and W respectively. Observe the figure and answer the following questions:



(a) Write a pair of alternate angles from the figure.

(b) What type of triangle is ΔVWX, according to angles of the triangle?

(c) At what value of ∠QVX, the given line segments PQ and RS will be parallel?

⇒ Sol^{n}.

(a) A pair of alternate angles from the given figure are:- ∠PVW and ∠VWX

(b) Here,

In ΔVWX,

$x + 2x + 75° = 180°$ [∵ The sum of interior angles of a triangle]

or, $3x + 75° = 180°$

or, $3x = 180° - 75°$

or, $3x = 105°$

or, $x = \frac{105°}{3}$

$\therefore x = 35°$

So,

$\angle WVx = 35°$

$\angle VWx = 75°$

$\angle VXW = 2 \times 35° = 70°$

Thus,

ΔVWX is a acute triangle according to the angles of the triangle.

(c) Here,

$\angle QVX = \angle VXW$ [$\because$ Alternate angle]

$= 2x$

$= 2 \times 35°$

$= 70°$

Thus,

the value of $\angle QVX$ is 70° then the line segments PQ and RS will be parallel.

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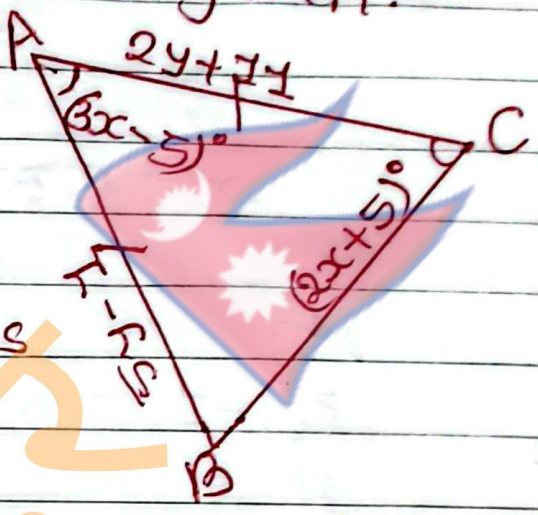
Q.9. In the figure, the measurements of two sides and angles of isosceles triangle are given.



(a) What is the sum of interior angles of the triangle?

(b) What are the values of x and y?

⇒ Sol^{n}.

(a) The sum of interior angles of the triangle is $180°$.

(b) Here,

In ΔABC,

$\angle A + \angle B + \angle C = 180°$

[$\because$ sum of interior angles of a triangle]

or, $(3x-5)° + (2x+5)° + (2x+5)° = 180°$

or, $3x - 5° + 2x + 5° + 2x + 5° = 180°$

or, $7x + 5° = 180°$

or, $7x = 180° - 5°$

or, $7x = 175°$

or, $x = \frac{175°}{7}$

$\therefore x = 25°$ Ans

Again,

$5y - 1 = 2y + 11$ ($\because AB = AC$)

or, $5y - 2y = 11 + 1$

or, $3y = 12$

or, $y = \frac{12}{3}$

$\therefore y = 4$ Ans

Thus, the values of x and y are 25° and 4 respectively.

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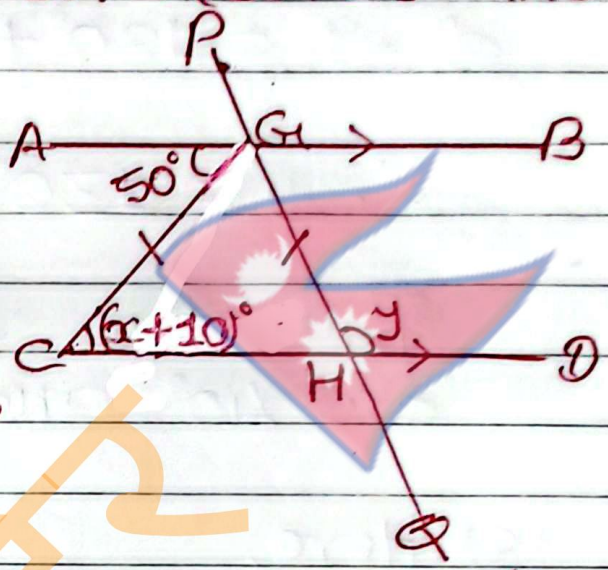
Q.10. In the figure, AB || CD and CG = GH. If ∠AGC = 50°, ∠GCH = (x+10)° and ∠GHD = y.



(a) Which is the corresponding angle of ∠PGB?

(b) Find the values of x and y.

(c) What is the sum of ∠BGH and ∠GHD?

⇒ Solⁿ.

(a) The corresponding angle of ∠PGB is ∠GHD.

(b) Here,

$x + 10° = 50°$ [∵ Alternate angle]

or, $x = 50° - 10°$

$\therefore x = 40°$

Also,

∠GHC = ∠BCH = $(x+10)°$ [∵ CG = GH]

Then,

$x + 10° + y = 180°$ [∵ Supplementary angle]

$40° + 10° + y = 180°$

$\therefore 50° + y = 180°$

$\therefore y = 180° - 50°$

$\therefore y = 130°$

Thus, the values of x and y are $40°$ and $130°$ respectively.

(c) Here,

$\angle BGH = \angle GHC$ [$\because$ Alternate angle]

$= x + 10°$

$= (40 + 10)°$

$= 50°$

$\angle GHD = y = 130°$

Now,

The sum of $\angle BGH$ and $\angle GHD$ is

$= 50° + 130°$

$= 180°$