

EXERCISE 6.1

9th (Chapter No. 06)

RANKA

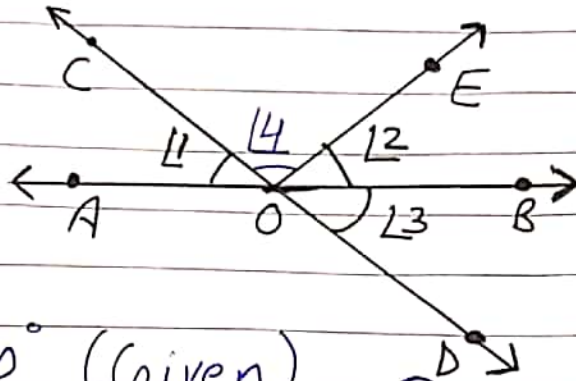
No. 06

DATE

PAGE

CLASS - 9th (Chapter No. 06)

Q.1



$$L1 + L2 = 70^\circ \text{ (Given) } \text{--- (1)}$$

$$L3 = 40^\circ \text{ (Given) } \text{--- (2)}$$

$$L1 = L3 = 40^\circ \text{ (Vertically opposite \angle s)}$$

$$40^\circ + L2 = 70^\circ \text{ (गिषा गन गन के हें)}$$

$$L2 = 70^\circ - 40^\circ$$

$$\boxed{L2 = 30^\circ}$$

$$\boxed{L2 = 30^\circ}$$

$$L1 + L4 + L2 = 180^\circ$$

(AOB is line)

(AOB रेखा है)

$$70^\circ + L4 = 180^\circ$$

$$L4 = 180^\circ - 70^\circ$$

$$\boxed{L4 = 110^\circ}$$

$$\text{Reflex of } L4 (\angle COE) = 360^\circ - 110^\circ = 250^\circ$$

Q.2

$\angle 1 = 90^\circ$ (Given)

$a:b = 2:3$ (Given)

Let $\boxed{a = 2x, b = 3x} - \textcircled{A}$

$a + b + \angle 1 = 180^\circ - \textcircled{1}$ (XOY is line)
(XOY एक सीधी रेखा है)

$2x + 3x + 90 = 180$

$5x + 90^\circ = 180^\circ$

$5x = 180^\circ - 90^\circ$

$5x = 90^\circ$

$x = \frac{90^\circ}{5} = 18^\circ$

$\boxed{x = 18^\circ}$

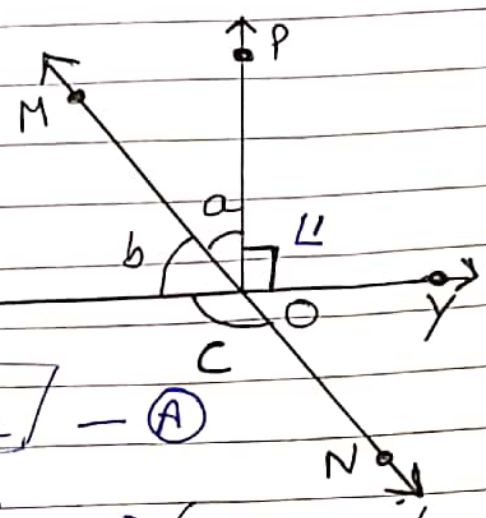
using $\textcircled{A}$ $a = 2x = 2 \times 18 = 36^\circ$

$b = 3x = 3 \times 18 = 54^\circ$

$b + c = 180^\circ$ (Linear pair)

$54^\circ + c = 180^\circ$ (दोनों को जोड़ें)

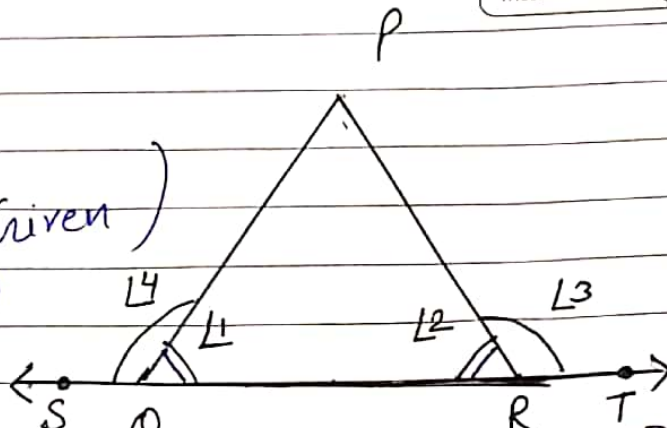
$\boxed{c = 180 - 54 = 126^\circ}$



Q.3

$$\angle POR = \angle PRO \quad (\text{Given})$$

$$\angle 1 = \angle 2 \quad \text{--- ①}$$



$$\angle 4 = 180 - \angle 1$$

$$\angle 3 = 180 - \angle 2$$

Linear pair
{
}

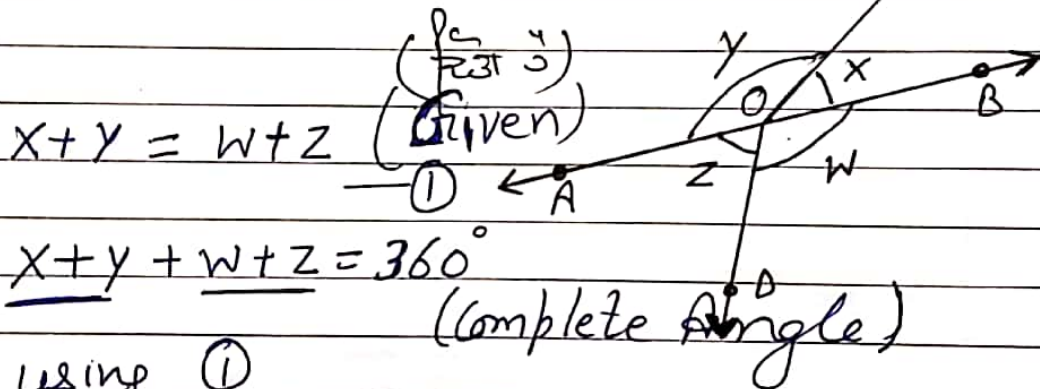
using ①

$\angle 4 = \angle 3$

(① & ④)

$\angle PQS = \angle PRT$

Q.4



$$X + Y = W + Z \quad (\text{Given})$$

$$\text{--- ①}$$

$$\underline{X + Y + W + Z = 360^\circ}$$

(Complete Angle)

using ①

$$X + Y + X + Y = 360^\circ$$

$$2X + 2Y = 360^\circ$$

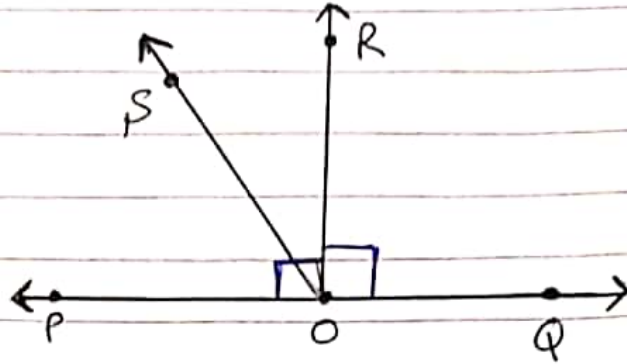
$$2(X + Y) = 360^\circ$$

$$X + Y = \frac{360}{2} = 180^\circ$$

$X + Y = 180^\circ$

AOB is line using Converse of Linear Pair
(AOB परा-संग-कोण)

Q.5



$$\angle ROS + \angle POS = \angle POR = 90^\circ$$

$$\angle ROS = 90^\circ - \angle POS \quad \text{--- (1)}$$

$$\angle ROS = \angle QOS - 90^\circ \quad \text{--- (2)}$$

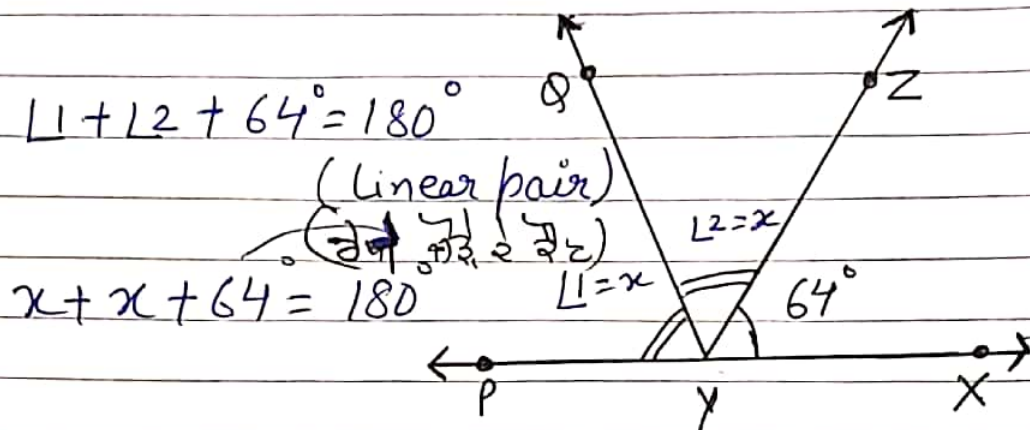
adding (1) and (2) [① me ② se mila ke]

$$2 \angle ROS = \angle QOS - \angle POS$$

$$\boxed{\angle ROS = \frac{1}{2} (\angle QOS - \angle POS)}$$

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Q.6



$$2x = 180^\circ - 64^\circ$$

$$2x = 116^\circ$$

$$x = \frac{116}{2} = 58^\circ$$

$$\boxed{x = 58^\circ}$$

$$\boxed{\angle ZYP = 2x = 116^\circ}$$

$$\boxed{\angle XYQ = 64^\circ + x = 64^\circ + 58^\circ = 122^\circ}$$

$$\boxed{\angle XYQ = 122^\circ}$$

$$\text{Reflex of } \angle QYP (L1) = 360^\circ - 58^\circ = 302^\circ$$

$$\boxed{\text{Reflex of } \angle QYP (L1) = 302^\circ}$$

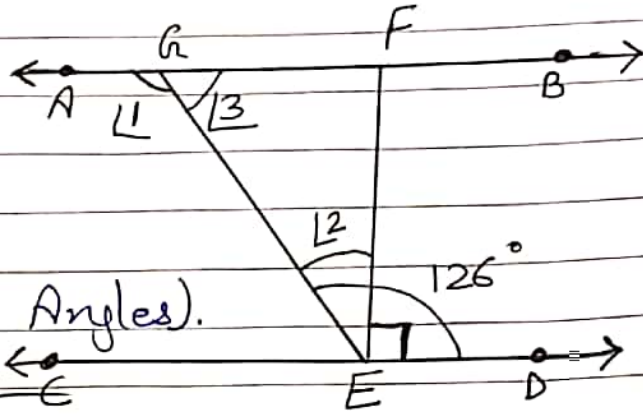
Q.3

$$\angle GED = 126^\circ$$

$$\angle 1 = \angle GED = 126^\circ$$

(Alternate Angles).

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$$\angle 12 + 90 = 126$$

$$\angle 12 = 126 - 90$$

$$\angle 12 = 36^\circ$$

$$\angle 1 + \angle 3 = 180^\circ$$

(Linear pair)

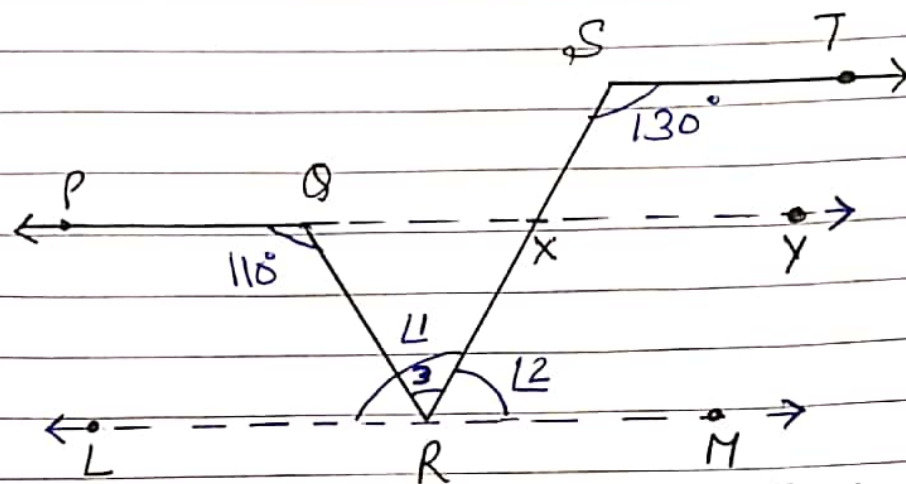
(ਦੋ ਖੇਤਰਾਂ ਵਿਚ)

$$126^\circ + \angle 3 = 180^\circ$$

$$\angle 3 = 180^\circ - 126^\circ$$

$$\angle 3 = 54^\circ$$

Q.4



Construction: (i) Extend PQ to Y [PQ & Y are collinear]
(ii) Draw LM || PQ || ST
(iii) Draw

$\angle 1 = \angle S = 130^\circ$ (Alternate Angles)
[PQ & ST are parallel]

$\angle 1 + \angle 2 = 180^\circ$ (Linear pair)
[PQ & LM are parallel]

$130^\circ + \angle 2 = 180^\circ$

$\angle 2 = 180^\circ - 130^\circ$

$\angle 2 = 50^\circ$

$\angle 3 + \angle 2 = 110^\circ$ (Alternate Angles)
[PQ & LM are parallel]

$\angle 3 + 50^\circ = 110^\circ$

$\angle 3 = 110^\circ - 50^\circ$

$\angle 3 = 60^\circ$

Q5

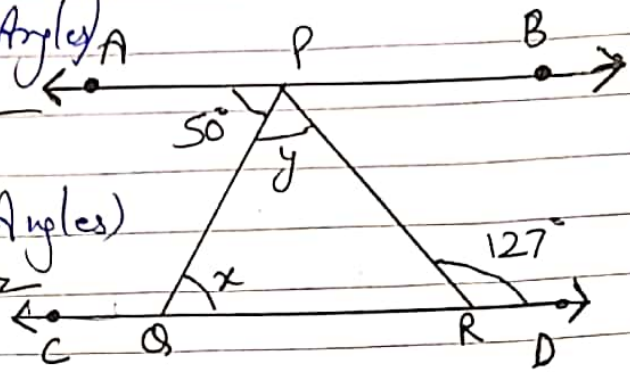
$x = 50^\circ$ (Alternate Angles)
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$50 + y = 127$

(Alternate Angles)
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$y = 127 - 50$

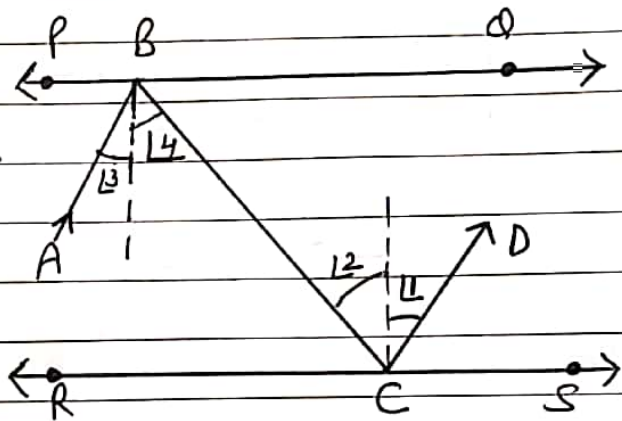
$y = 77^\circ$



Q6

$\angle 1 = \angle 2$ (Angle of incidence is
 $\angle 3 = \angle 4$ equal to
 Angle of reflection)

(A) equal to
 Angle of reflection)



$\angle 2 = \angle 4$ (Alternate Angles)
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from (A) and (B)

(A) m (B) 3

$\angle 1 = \angle 3$ (C)

Adding (B) and (C) (B) m (C) કરતાં છે

$\angle 1 + \angle 2 = \angle 3 + \angle 4$

$\angle BCD = \angle ABC$

Hence $AB \parallel CD$ (Alternate Angles are equal)

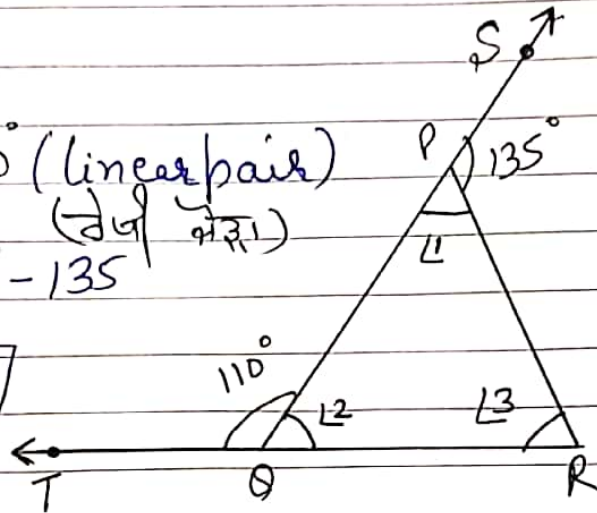
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EXERCISE 6.3

Q.1

$$\begin{aligned} \angle 1 + 135^\circ &= 180^\circ \text{ (Linear pair)} \\ &\text{(રેખા જોડા)} \\ \angle 1 &= 180^\circ - 135^\circ \end{aligned}$$

$$\boxed{\angle 1 = 45^\circ}$$



$$\begin{aligned} \angle 2 + 110^\circ &= 180^\circ \text{ (Linear pair)} \\ &\text{(રેખા જોડા)} \\ \angle 2 &= 180^\circ - 110^\circ \end{aligned}$$

$$\boxed{\angle 2 = 70^\circ}$$

$$\begin{aligned} \angle 1 + \angle 2 + \angle 3 &= 180^\circ \text{ (Sum of interior angles of } \triangle) \\ 45^\circ + 70^\circ + \angle 3 &= 180^\circ \\ 115^\circ + \angle 3 &= 180^\circ \end{aligned}$$

($\triangle$ રે મેરણ લેટા ચાકર)

$$\angle 3 = 180^\circ - 115^\circ$$

$$\boxed{\angle 3 = 65^\circ}$$

Q.2

$$X + Y + Z = 180^\circ$$

(Angle Sum property)

(अंतरांतर कोणों का योग)

$$62^\circ + 54^\circ + Z = 180^\circ$$

$$116^\circ + Z = 180^\circ$$

$$Z = 180^\circ - 116^\circ$$

$$\boxed{Z = 64^\circ}$$

$$L_2 = \frac{1}{2}(Z) = \frac{1}{2}(64^\circ) = 32^\circ$$

(ZO bisector LZ)

(ZO, LZ अंतरांतर कोणों का योग)

$$\boxed{L_2 = 32^\circ}$$

$$L_3 = \frac{1}{2}(Y) = \frac{1}{2}(54^\circ) = 27^\circ$$

$$\boxed{L_3 = 27^\circ}$$

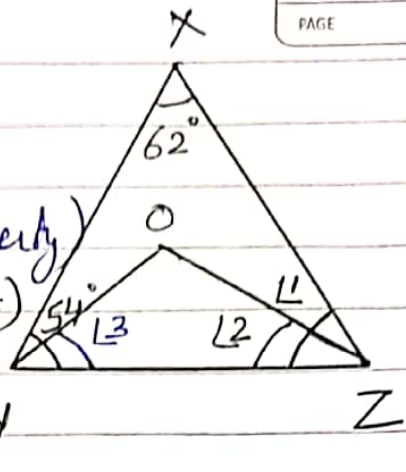
$$L_0 + L_3 + L_2 = 180^\circ \quad (\text{Angle Sum Property})$$

$$L_0 + 27^\circ + 32^\circ = 180^\circ \quad (\text{अंतरांतर कोणों का योग})$$

$$L_0 + 59^\circ = 180^\circ$$

$$L_0 = 180^\circ - 59^\circ$$

$$\boxed{L_0 = 121^\circ}$$



Q.3

$\angle 1 = \angle A = 35^\circ$
(Alternate angles)
(फैराडा केर)

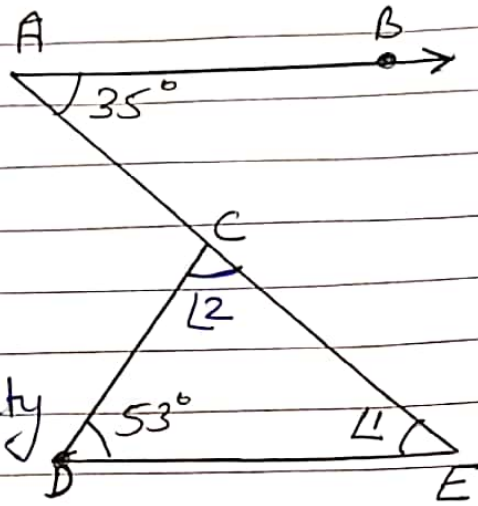
$\angle 2 + \angle D + \angle 1 = 180^\circ$
Angle Sum property

$\angle 2 + 53^\circ + 35^\circ = 180^\circ$ (Angle Sum property)

$\angle 2 + 88^\circ = 180^\circ$ (अन केर केर केर)

$\angle 2 = 180^\circ - 88^\circ$

$\angle 2 = 92^\circ$



Q.4

$\angle 1 + 40^\circ + 95^\circ = 180^\circ$
(Angle Sum Property)
अन केर केर केर केर

$\angle 1 + 135 = 180$

$\angle 1 = 180 - 135^\circ$

$\angle 1 = 45^\circ$

$\angle 2 = \angle 1 = 45^\circ$ (Vertically opposite Angles)
(गुण केर केर)

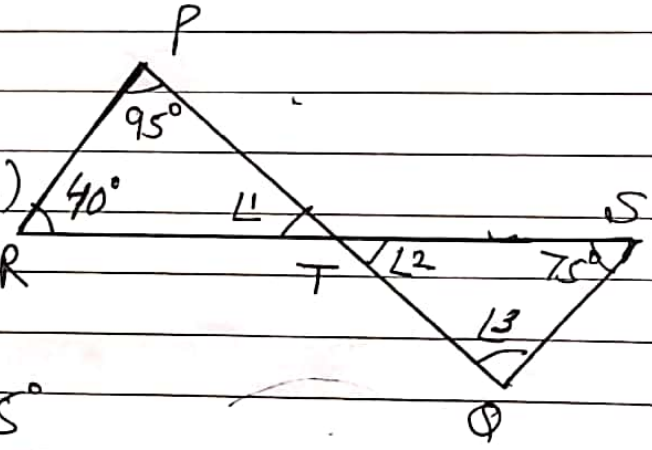
$\angle 3 + \angle 2 + 75^\circ = 180^\circ$ (Angle Sum property)

$\angle 3 + 45^\circ + 75^\circ = 180^\circ$
(अन केर केर केर केर)

$\angle 3 + 120^\circ = 180^\circ$

$\angle 3 = 180^\circ - 120^\circ$

$\angle 3 = 60^\circ$



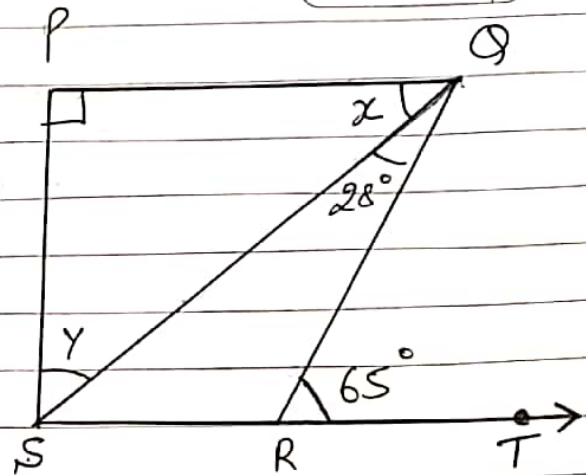
Q5

$$x + 28^\circ = 65^\circ$$

(Alternate angles)
($\angle$ $\angle$ $\angle$ $\angle$)

$$x = 65^\circ - 28^\circ$$

$$\boxed{x = 37^\circ}$$



$$y + x + 90^\circ = 180^\circ$$

(Angle Sum property)

$$y + 37^\circ + 90^\circ = 180^\circ$$

(Δ $\angle$ $\angle$ $\angle$ $\angle$)

$$y + 127^\circ = 180^\circ$$

$$y = 180^\circ - 127^\circ$$

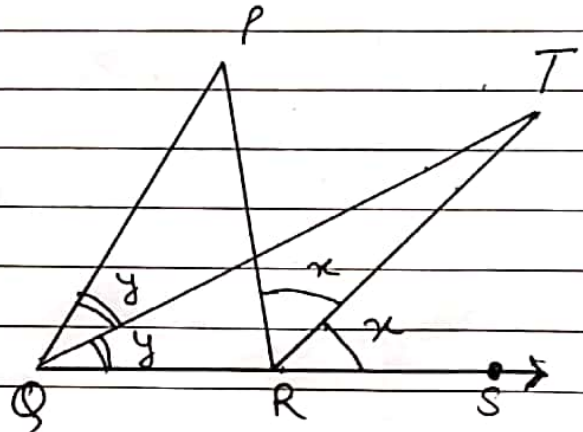
$$\boxed{y = 53^\circ}$$

Q6

In ΔPQR

$$2x = 2y + 1P \quad \text{--- (1)}$$

(Exterior angle property)
($\angle$ $\angle$ $\angle$ $\angle$)



$$\text{In } \Delta TQR, \quad x = y + 1T \quad \text{--- (2)}$$

(Exterior Angle property)
($\angle$ $\angle$ $\angle$ $\angle$)

using (1) and (2)

$$2(y + 1T) = 2y + 1P$$

$$2y + 21T = 2y + 1P$$

$$\boxed{21T = 1P}$$

$$\boxed{1T = \frac{1}{2} 1P}$$