Exercise 6.3

4) In Fig 6.42, if the lines PQ and RS intersect at point T, such that PRT = 40°, RPT = 95° and TSQ = 75°, find SQT.

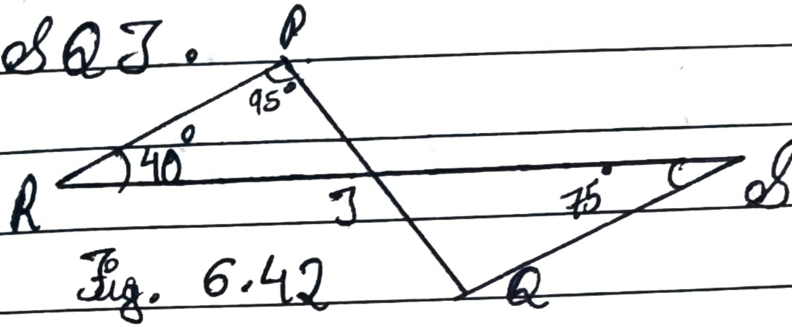

Fig. 6.42

ans) Consider triangle PRT.

PRT + RPT + PTR = 180°

So, PTR = 45°

Now PTR will be equal to STQ as they are vertically opposite angles.

So, PTR = STQ = 45°

Again, in triangle STQ.

TSQ + PTR + SQT = 180°

So, SQT = 60°

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5) In Fig. 6.43, if $PQ \perp PS$, $PQ \parallel SR$, $SQR = 28^\circ$ and $QRT = 65^\circ$, then find the values of x and y.

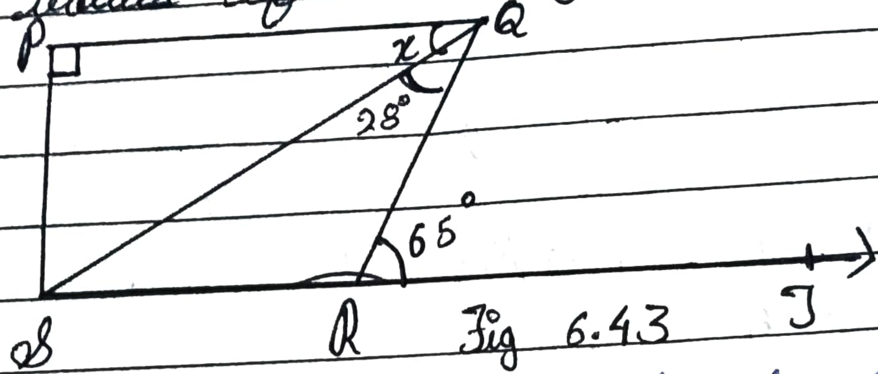

Fig 6.43

ans) $x + SQR = QRT$ (As they a alternate angles since QR is transversal)
So, $x + 28^\circ = 65^\circ$
$\therefore x = 37^\circ$
It is also known that alternate interior angles are same
so, $QRS = x = 37^\circ$
Also, Now,
$QRS + QRT = 180^\circ$ (As they are a linear pair)
Or, $QRS + 65^\circ = 180^\circ$
$\therefore QRS = 115^\circ$
Now, we know that the sum of the angles in a quadrilateral is 360°. So, ~~PQR~~ $R + P + Q + S = 360^\circ$
Putting their respective values, we get,
$S = 360^\circ - 90^\circ - 65^\circ - 115^\circ$
In ΔSPQ
$\angle SPQ + x + y = 180^\circ$
$90^\circ + 37^\circ + y = 180^\circ$
$y = 180^\circ - 127^\circ = 53^\circ$
$\therefore y = 53^\circ$