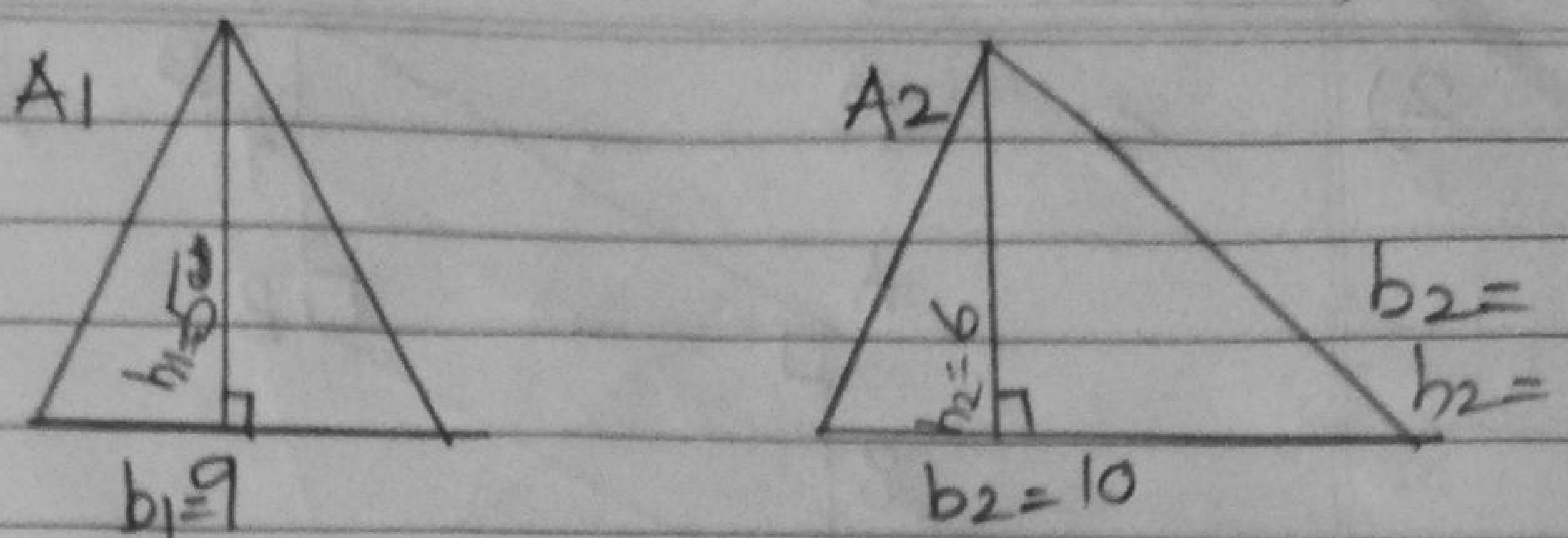
25/8

P.S : 1.1

1



Let A_1 be the area of first triangle having base $b_1 = 9$, height $h_1 = 5$

Similarly let A_2 be the area of another triangle having base $b_2 = 10$ & height $h_2 = 6$

$\because$ Ratio of areas of two triangles is equal to the ratio of the products of their bases & height

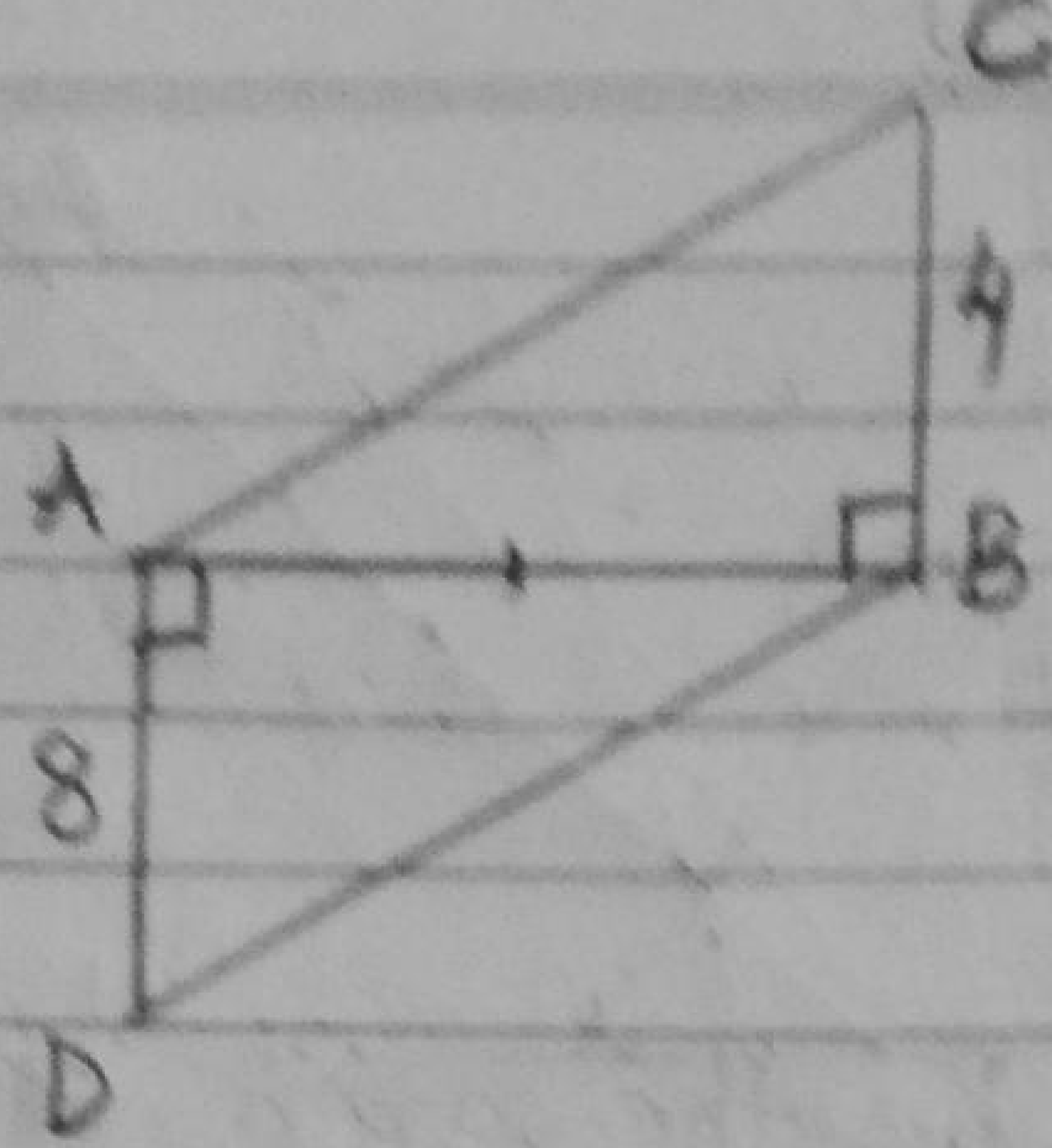
$$\therefore \frac{A_1}{A_2} = \frac{b_1 \times h_1}{b_2 \times h_2}$$

$$\frac{A_1}{A_2} = \frac{\overset{3}{\cancel{9}} \times \overset{1}{\cancel{5}}}{\underset{2}{\cancel{10}} \times \underset{2}{\cancel{6}}}$$

$$\frac{A_1}{A_2} = \frac{3}{4}$$

Scanned by TapScanner

2)



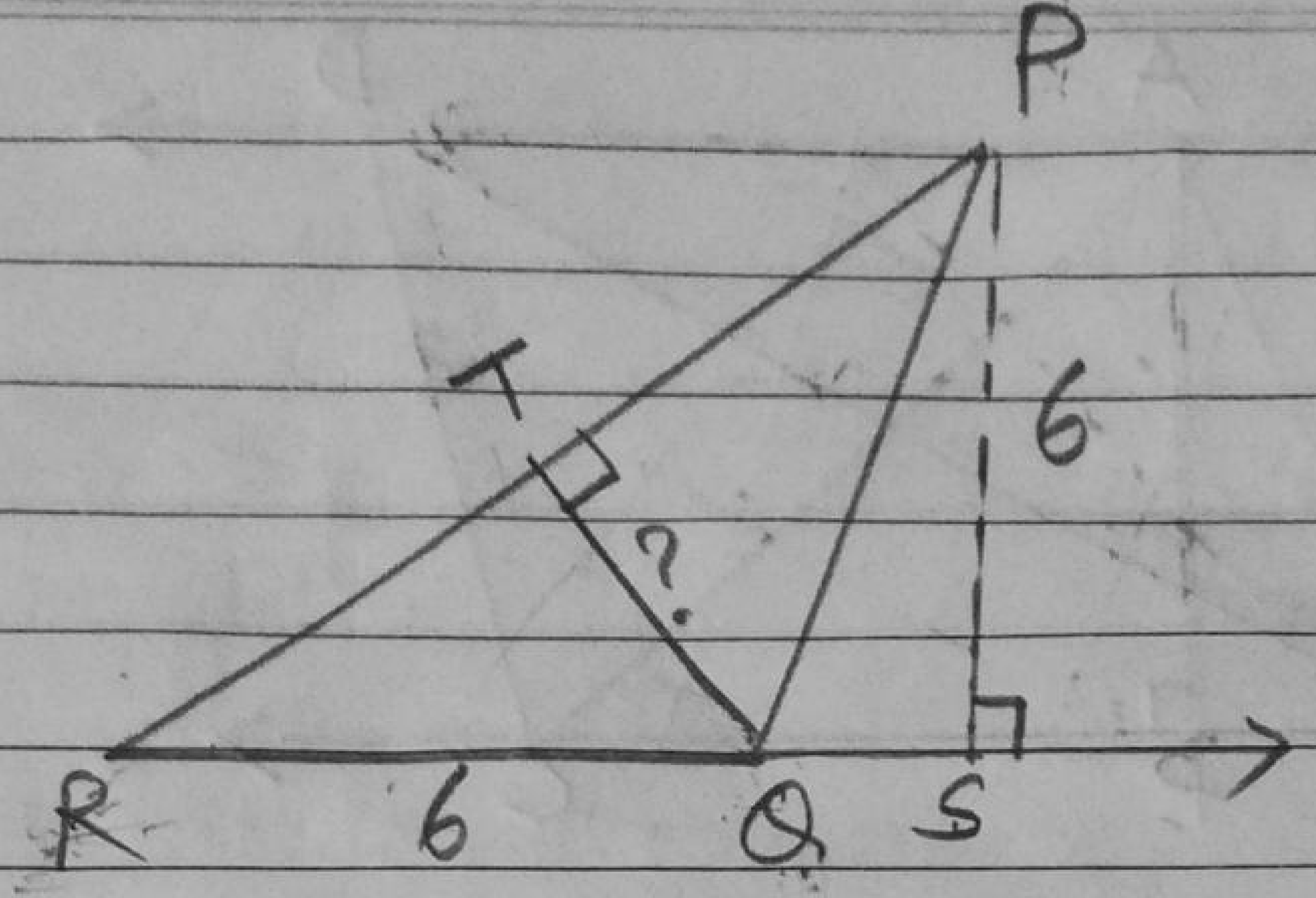
The ratio of areas of two triangles with equal base are proportional to their corresponding heights.

$$\frac{A(\triangle ABC)}{A(\triangle ADB)} = \frac{BC}{AD} \quad [\because b_1 = b_2]$$

$$\frac{A(\triangle ABC)}{A(\triangle ADB)} = \frac{\cancel{4}^{1}}{\cancel{8}_{2}}$$

$$\boxed{\frac{A(\triangle ABC)}{A(\triangle ADB)} = \frac{1}{2}}$$

3)



$A(\triangle PRQ) = \frac{1}{2} \times base \times height$

$= \frac{1}{2} \times RQ \times PS$

$= \frac{1}{\cancel{2}_1} \times 6 \times \cancel{6}^{3}$

$\therefore A(\triangle PRQ) = 18$

$A(\triangle PRQ) = \frac{1}{2} \times base \times height$

$A(\triangle PRQ) = \frac{1}{2} \times PR \times QT$

$18 = \frac{1}{\cancel{2}_1} \times \cancel{12}^{6} \times QT$

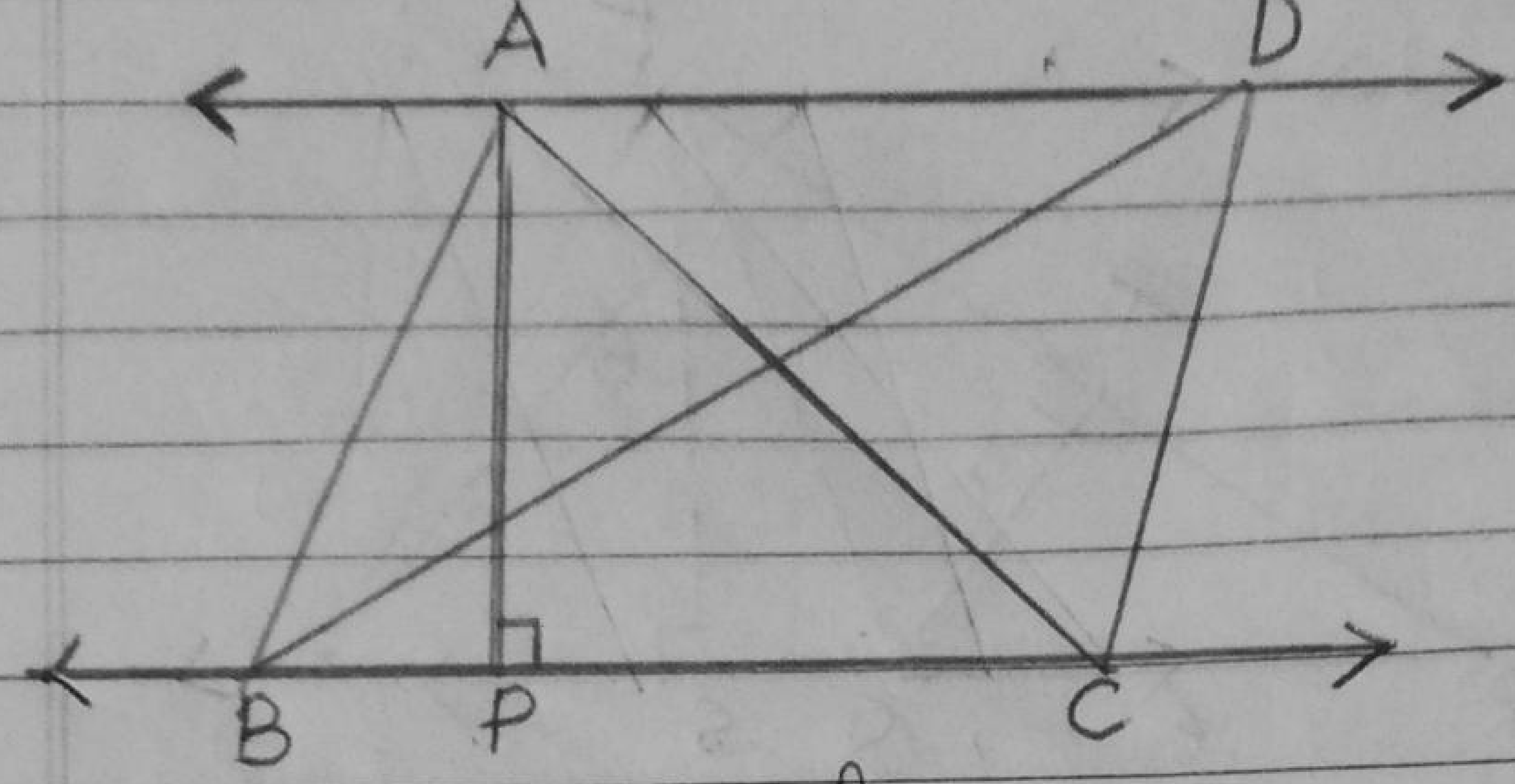
$18 = 6 \times QT$

$\frac{\cancel{18}^{3}}{\cancel{6}_1} = QT$

$3 = QT$

$\therefore QT = 3$

4)



In the given figure.
$\triangle ABC$ & $\triangle BCD$ lies between same parallel lines AD & BC
$\therefore$ having common height AP
Also $\triangle ABC$ & $\triangle BCD$ having common base BC

$$\therefore \frac{A(\triangle ABC)}{A(\triangle BCD)} = \frac{b_1 \times h_1}{b_2 \times h_2}$$

$$\frac{A(\triangle ABC)}{A(\triangle BCD)} = \frac{\cancel{BC} \times \cancel{AP}}{\cancel{BC} \times \cancel{AP}}$$

$$\frac{A(\triangle ABC)}{A(\triangle BCD)} = 1$$

$$\therefore A(\triangle ABC) = A(\triangle BCD)$$

5) i) $\frac{A(\triangle PQB)}{A(\triangle PBC)}$

$\because$ $\triangle PQB$ & $\triangle PBC$ having common height PQ.

$\therefore$ Area of triangles with equal height are proportional to their corresponding bases. $[h_1 = h_2]$

$$\frac{A(\triangle PQB)}{A(\triangle PBC)} = \frac{BQ}{BC} \quad [\because h_1 = h_2]$$

ii) $\frac{A(\triangle PBC)}{A(\triangle ABC)}$

$\triangle PBC$ & $\triangle ABC$ having common base BC.

$\therefore$ Area of triangles with equal base are proportional to their corresponding height $[\because b_1 = b_2]$

$$\therefore \frac{A(\triangle PBC)}{A(\triangle ABC)} = \frac{PQ}{AD} \quad [\because b_1 = b_2]$$

iii) $\frac{A(\triangle ABC)}{A(\triangle ADC)}$

$\because$ $\triangle ABC$ & $\triangle ADC$ having common height AD

$\therefore$ Areas of triangles with equal heights are proportional to their corresponding bases. [$h_1 = h_2$]

$\therefore \frac{A(\triangle ABC)}{A(\triangle ADC)} = \frac{BC}{DC}$ [$h_1 = h_2$]

iv) $\frac{A(\triangle ADC)}{A(\triangle PQC)}$

$\because$ Ratio of areas of two triangles is equal to the ratio of the products of their bases and corresponding heights.

$\therefore \frac{A(\triangle ADC)}{A(\triangle PQC)} = \frac{b_1 \times h_1}{b_2 \times h_2}$

$\frac{A(\triangle ADC)}{A(\triangle PQC)} = \frac{DC \times AD}{QC \times PQ}$