Assignment 1

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***Abstract*—This document contains the solution for Assignment 1 (ICSC Class 10 2017 Q.11(b))**

PROBLEM: PQR is a triangle.S is a point on the side QR of PQR such that $\angle PSR = \angle QPR$.
Given $QP = 8cm$,$PR = 6cm$ and $SR = 3cm$

1) Prove $\Delta PQR \sim \Delta SPR$

2) Find the length of sides QR and PS

3) $\dfrac{\text{area}(\Delta PQR)}{\text{area}(\Delta SPR)}$

Solution:

1) In ΔPQR and ΔSPR
$\angle PSR = \angle QPR$.
$\angle r$ is common to both
3rd angles are equal
therefore $\Delta PQR \sim \Delta SPR$
Hence sides are proportional.

2) $$\frac{QR}{PR} = \frac{PQ}{PS} = \frac{PR}{SR}$$
$$\implies \frac{QR}{6} = \frac{8}{PS} = \frac{6}{3}$$
$$\implies QR = 12 \text{ and } PS = 4$$

3) $$\frac{\text{area}(\Delta PQR)}{\text{area}(\Delta SPR)} = \frac{6^2}{3^2} = \frac{4}{1}$$

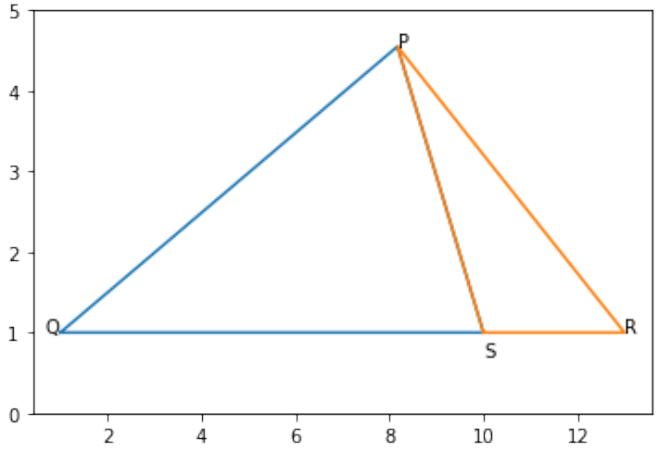

Fig. 1: given similar triangle. Code: `codes/assign_.py`