

TB(2A) Ch.2-Similar Triangles

1. [16-17 Final Exam #11]

In **Figure 4(a)**,  $PS$  and  $QR$  intersect at  $T$ . It is given that  $PT = 8$  cm,  $QT = TR = 12$  cm and  $TS = 18$  cm.

$TS = 18$

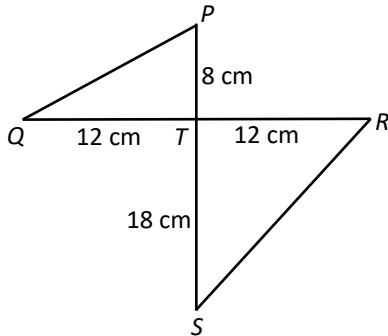


Figure 4(a)

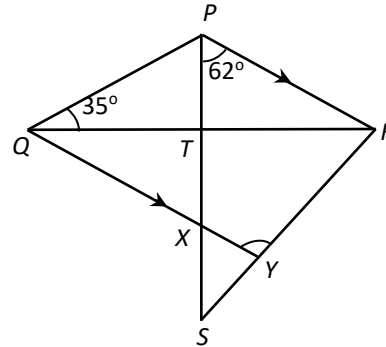


Figure 4(b)

(a) Prove that  $\Delta PQT \sim \Delta RST$ .

(2 marks)

(b) **Figure 4(b)** is obtained by joining  $PR$  in **Figure 4(a)**.  $Y$  is a point on  $RS$  so that  $PR \parallel QY$ .  $QY$  cuts  $TS$  at  $X$ . It is given that  $\angle PQT = 35^\circ$  and  $\angle RPS = 62^\circ$ . Find  $\angle QYR$ .

(2 marks)

2. [17-18 Final Exam #7]

In **Figure 4**, it is given that  $\Delta ABC \sim \Delta QRP$ . Find  $x$  and  $y$ .

(4 marks)

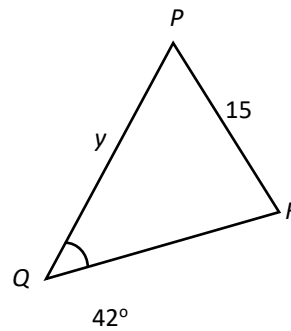
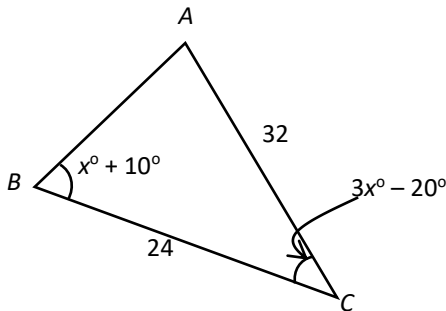


Figure 4

3. [17-18 Final Exam #15]

In Figure 11(a), it is given that  $\triangle ABC$  and  $\triangle PQR$  are similar triangles with  $AB = 8$ ,  $AC = 12$ ,  $PQ = 6$ ,  $PR = 9$  and  $\angle A = \angle P$ .

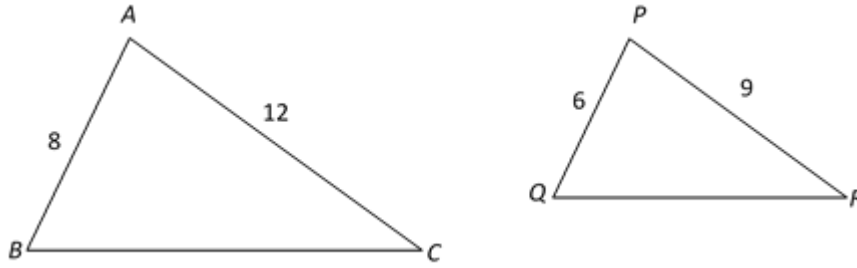


Figure 11(a)

In Figure 11(b), the upper part of  $\triangle ABC$  and  $\triangle PQR$  are removed so that the two similar triangles become two trapeziums  $BCDE$  and  $QRST$ .

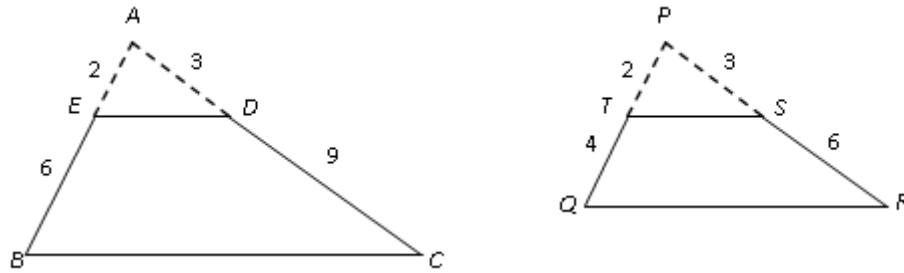


Figure 11(b)

Velvet claims that the two trapeziums  $BCDE$  and  $QRST$  are similar. Do you agree? Explain briefly. (2 marks)

4. [18-19 S Test II, #5]

In Figure 3,  $BEC$  and  $ADC$  are the straight lines. It is given that  $AB \parallel DE$ ,  $DC = 5$  cm,  $DE = 4$  cm,  $AB = 6$  cm,  $\angle BAC = 65^\circ$  and  $\angle ACB = 46^\circ$ .

- (a) Find  $\angle DEC$ . (2 marks)
- (b) (i) Prove that  $\triangle ABC \sim \triangle DEC$ . (2 marks)
- (ii) Find  $AD$ . (2 marks)

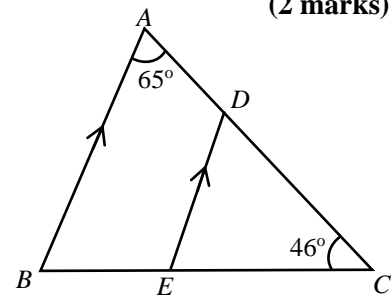


Figure 3

5. [18-19 Final Exam #11]

In **Figure 6**,  $ADC$  is a straight line and  $ED \parallel AB$ .  
 $AD = 2$ ,  $DC = 4$ ,  $ED = 3$  and  $AB = 9$ . Prove that  $\triangle ADE \sim \triangle CAB$ .  
 (2 marks)

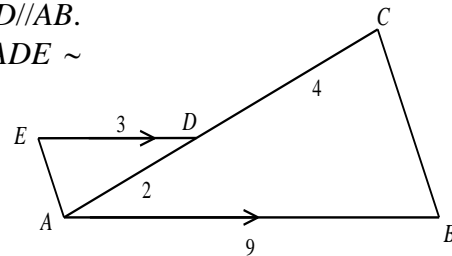


Figure 6

6. [20-21 S. 2 Final Exam #20]

In **Figure 9**,  $D$ ,  $E$  and  $F$  are points on  $AC$ ,  $AB$  and  $BC$  respectively.  $BF = 8$  cm,  $DF = FC = 2$  cm,  $EF = 4$  cm,  $AC = 5$  cm and  $\angle ACB = \angle DFE$ .

(a) Prove that  $\triangle ABC \sim \triangle DEF$ . (3 marks)

(b) Prove that  $AC \parallel EF$ . (2 marks)

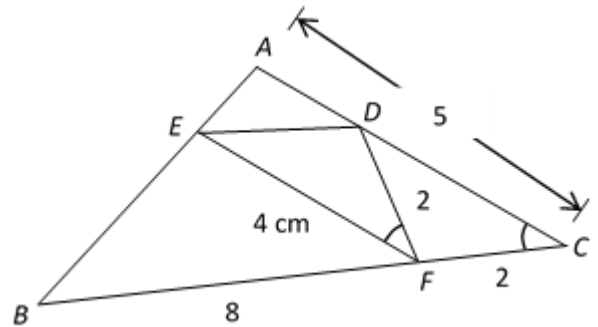


Figure 9

7. [16-17 Final Exam #13]

In **Figure 5**,  $PQRS$  is a quadrilateral. The diagonals  $PR$  and  $SQ$  intersect at  $T$ . It is given that  $TQ = TR$  and  $\angle QPR = \angle RSQ$ .

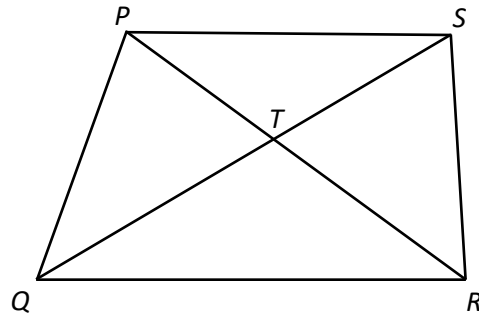


Figure 5

(a) Prove that  $\triangle PQR \cong \triangle SRQ$ . (3 marks)

(b) Consider the triangles in **Figure 5**.

(i) Name all the pairs of congruent triangles. (2 marks)

(ii) How many pairs of similar triangles are there? (1 mark)

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