

## TB(2B) Ch. 9 Introduction to Deductive Geometry Conventional Questions

**1. [13-14 Final Exam, #10]**

In **Figure 3**,  $D$  is a point lying on  $AC$  such that  $\angle ACB = \angle ABD$ .

- (a) Prove that  $\triangle ABC \sim \triangle ADB$ . (2 marks)
- (b) Suppose  $AC = 25$  cm,  $AB = 20$  cm and  $BD = 12$  cm. Prove that  $\triangle ABD$  is a right-angled triangle. (3 marks)

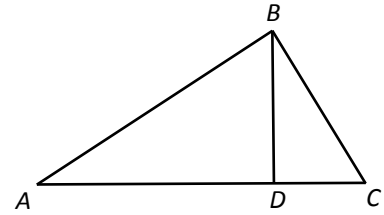


Figure 3

**2. [14-15 Final Exam #13]**

In **Figure 4**,  $M$  and  $N$  are points on  $AC$  and  $BC$  respectively such that  $AC \times CM = BC \times CN$ .

- (a) Show that  $\triangle ABC \sim \triangle NMC$ . (2 marks)
- (b) Using the result of (a),
  - (i) if  $\angle ABC = \angle BAC$ , show that  $\triangle NMC$  is an isosceles triangle. (2 marks)
  - (ii) find  $\angle ABC + \angle AMN$ . (2 marks)

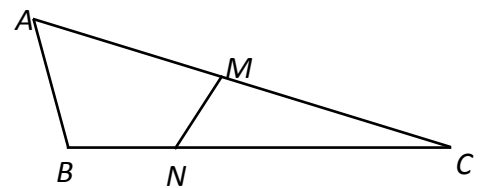


Figure 4

**3. [15-16 Final Exam #5]**

In **Figure 1**,  $ABCD$  and  $EFG$  are straight lines, and  $\angle BFC = 45^\circ$ .

- (a) Find  $x$ . (2 marks)
- (b) Prove that  $AD \parallel EG$ . (2 marks)

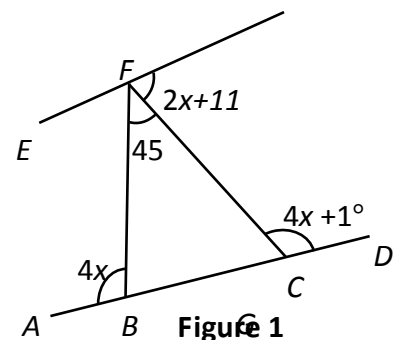
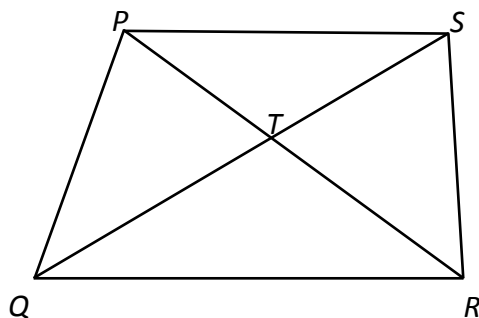


Figure 1

4. [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

- (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)

5. [17-18 Final Exam #10]

In **Figure 3**,  $AD = BD$ ,  $\angle ABD = \angle DBC$  and  $AB \parallel DE$ .

- (a) Prove that  $\triangle BDE$  is an isosceles triangle. (2 marks)
- (b) Prove that  $\triangle ABC \sim \triangle BDC$ . (2 marks)
- (c) If  $AB = 12$  and  $BD = 8$ , find the length of  $DC$ . (2 marks)

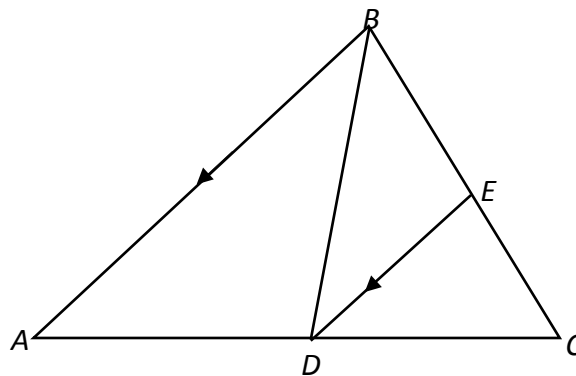


Figure 3

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