

Chapter 6 Similar Triangles

UNIT TEST

Duration: 1 hour

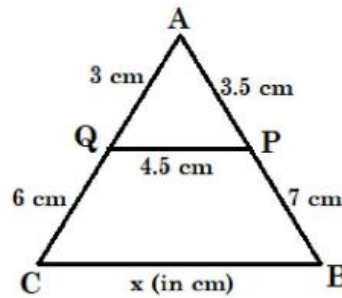
Marks: 30

SECTION A

Each carry 1 mark

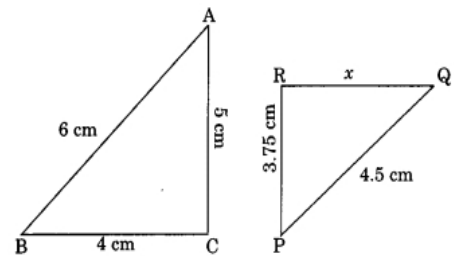
1. In the given figure, write the value of x .

- a) 9 cm b) 10.5 cm
- c) 13.5 cm d) 12 cm



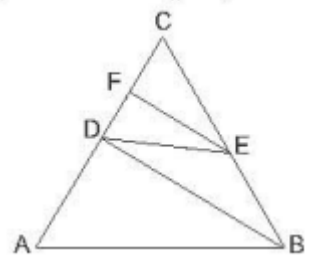
2. In the given figure $\triangle ABC \sim \triangle PQR$. The value of x is

- (a) 2.5 cm (b) 3.5 cm
- (c) 2.75 cm (d) 3 cm



3. If in the given figure, $AB \parallel DE$ and $BD \parallel EF$, then $DC^2 =$

- a) $CF + AC$ b) $CF \times AC$
- c) $CF + 2AC$ d) None of these



4. Assertion: D and E are points on the sides AB and AC respectively of a $\triangle ABC$ such that $AD = 5.7\text{cm}$, $DB = 9.5\text{cm}$, $AE = 4.8\text{cm}$ and $EC = 8\text{cm}$ then DE is not parallel to BC.

Reason: If a line divides any two sides of a triangle in the same ratio, then it is parallel to the third side.

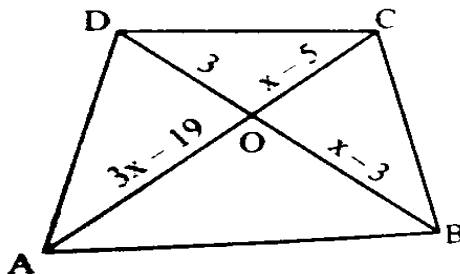
- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- (b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
- (c) Assertion (A) is true but Reason (R) is false.
- (d) Assertion (A) is false but Reason (R) is true.

SECTION B

Each carry 2 marks

5. In given figure, $DE \parallel BC$. If $AD = x$, $DB = x - 2$, $AE = x + 2$ and $EC = x - 1$, find the value of x .

6. In figure, $AB \parallel DC$, find the value of x .



7. In $\triangle ABC$, $DE \parallel BC$. If $AC = 6.4\text{cm}$, $AE = 4\text{cm}$, $BC = 3.5\text{cm}$ and $BD = 3\text{cm}$. Find AD and DE .

SECTION C

Each carry 3 marks

8. In given figure, $\triangle ABR \sim \triangle PQR$. If $PQ = 40\text{cm}$, $AR = 60\text{cm}$, $AP = 82\text{cm}$ and $QR = 55\text{cm}$, find PR and BR .

9. P and Q are points on sides AB and AC respectively of $\triangle ABC$. If $AP = 3\text{cm}$, $PB = 6\text{cm}$, $AQ = 5\text{cm}$ and $QC = 10\text{cm}$, show that $BC = 3PQ$.

SECTION D

Each carry 5 marks

10. Prove that the line segments joining the mid-points of the sides of a triangle form four triangles each of which is similar to the original triangle.

11. $ABCD$ is a parallelogram. P is the mid-point of the side CD . BP meets diagonal AC at X .

Prove that $3AX = 2AC$.

SECTION E

12. Vijay is trying to find the average height of a tower near his house. He is using the properties of similar triangles. The height of Vijay's house, is 20m when Vijay's house casts a shadow 10m long on the ground. At the same time, the tower casts a shadow 50m long on the ground and the house of Ajay casts 20m shadow on the ground.



- i) What is the height of the tower?
- ii) What will be the length of the shadow of the tower when Vijay's house casts a shadow of 12m?
- iii) What is the height of Ajay's house?
- iv) When the tower casts a shadow of 40m, same time what will be the length of the shadow of Ajay's house?

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1. c) 13.5 cm

2. (d) 3 cm

3. b) CF x AC

4. (d) Assertion (A) is false but Reason (R) is true.

5. $x = 4$

6. 8 or 9

7. 5cm and 2.2cm

8. 22cm & 150cm

9. $BC = 3PQ$

10. Proof

11. $3AX = 2AC$

12. i) 100m

ii) 60m

iii) 40m

iv) 40m