

Test / Exam Name: Triangles

Standard: 10th

Subject: Mathematics

Student Name: \_\_\_\_\_

Section: \_\_\_\_\_

Roll No.: \_\_\_\_\_

Questions: 35

Time: 01:00 hh:mm

Negative Marks: 0

Marks: 35

## Instructions

### 1. MULTIPLE CHOICE QUESTIONS.

**Q1.** Which of the following is not a similarity criterion for two triangles?

**1 Mark**

- A** AAA                      **B** SAS                      **C** SSS                      **D** ASA

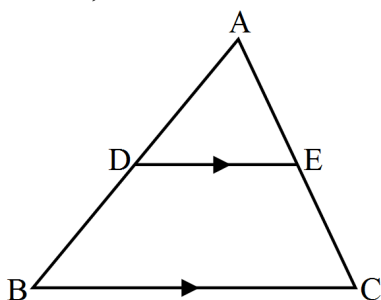
**Q2.** Which of the following are not similar figu:

**1 Mark**

- A** Circles                      **B** Squares                      **C** Equilateral triangles                      **D** Isosceles triangles

**Q3.** In a  $\triangle ABC$ , if DE is drawn parallel to BC, cutting AB and AC at D and E respectively such that AB = 7.2cm, AC = 6.4cm and AD = 4.5cm. Then, AE =?

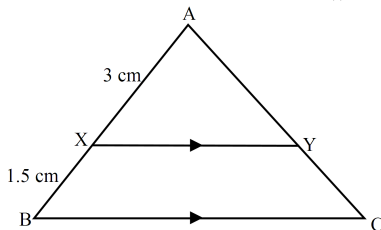
**1 Mark**



- A** 5.4cm                      **B** 4cm                      **C** 3.6cm                      **D** 3.2cm

**Q4.** In the given figure  $XY \parallel BC$ . If AX = 3cm, XB = 1.5cm and BC = 6cm, then XY is equal to:

**1 Mark**



- A** 4cm.                      **B** 6cm.                      **C** 4.5cm                      **D** 3cm.

**Q5.** In  $\triangle ABC$ , it is given that AB = 9cm, BC = 6cm and CA = 7.5cm. Also,  $\triangle DEF$  is given such that EF = 8cm and  $\triangle DEF \sim \triangle ABC$ . Then, perimeter of  $\triangle DEF$  is:

**1 Mark**

- A** 22.5cm                      **B** 25cm                      **C** 27cm                      **D** 30cm

**Q6.** In  $\triangle ABC$  and  $\triangle DEF$ , it is given that  $\angle B = \angle E$ ,  $\angle F = \angle C$  and  $AB = 3DE$ , then the two triangles are:

**1 Mark**

- A** Congruent but not similar                      **B** Similar but not congruent                      **C** Neither congruent not similar  
**D** Similar as well as congruent

**Q7.** It is given that  $\triangle ABC \sim \triangle DFE$ . If  $\angle A = 30^\circ$ ,  $\angle C = 50^\circ$ , AB = 5cm, AC = 8cm and DF = 7.5cm then which of the following is true?

**1 Mark**

- A** DE = 12cm,  $\angle F = 50^\circ$     **B** DE = 12cm,  $\angle F = 100^\circ$     **C** EF = 12cm,  $\angle D = 100^\circ$     **D** EF = 12cm,  $\angle D = 30^\circ$

**Q8.** If in  $\triangle ABC$  and  $\triangle DEF$ ,  $\frac{AB}{DE} = \frac{BC}{FD}$ , then they will be similar, when:

**1 Mark**

- A**  $\angle B = \angle E$                       **B**  $\angle B = \angle D$                       **C**  $\angle A = \angle D$                       **D**  $\angle A = \angle F$

**Q9.** If  $\triangle ABC \sim \triangle DEF$  then which of the following is true?

**1 Mark**

- A** BC.EF = AC.FD                      **B** BC.DE = AB.EF                      **C** AB.EF = AC.DE                      **D** BC.DE = AB.FD

**Q10.** Choose the correct answer from the given four options:

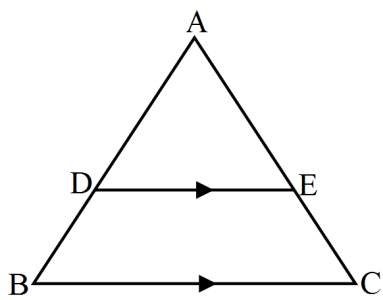
**1 Mark**

In triangles ABC and DEF,  $\angle B = \angle E$ ,  $\angle F = \angle C$  and  $AB = 3 DE$ . Then, the two triangles are:

- A** Congruent but not similar.                      **B** Similar but not congruent.                      **C** Neither congruent nor similar.  
**D** Congruent as well as similar.

**Q11.** In  $\triangle ABC$ , DE  $\parallel$  BC so that AD = (7x - 4)cm, AE = (5x - 2)cm, DB = (3x + 4)cm and EC = 3x cm. Then, we have:

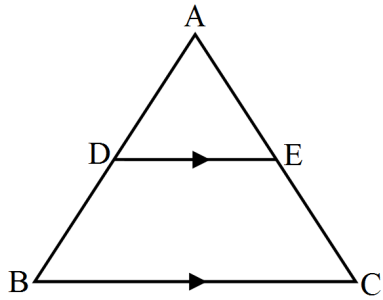
**1 Mark**



- A**  $x = 3$ 
**B**  $x = 5$ 
**C**  $x = 4$ 
**D**  $x = 2.5$

**Q12.**In  $\triangle ABC$ ,  $DE \parallel BC$  such that  $\frac{AD}{DB} = \frac{3}{5}$ .  $AC = 5.6\text{cm}$  then  $AE = ?$

**1 Mark**



- A** 4.2cm
**B** 3.1cm
**C** 2.8cm
**D** 2.1cm

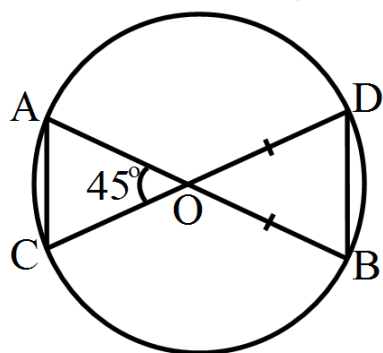
**Q13.**In an equilateral triangle ABC if  $AD \perp BC$ , then  $AD^2 =$

**1 Mark**

- A**  $CD^2$ 
**B**  $2CD^2$ 
**C**  $3CD^2$ 
**D**  $4CD^2$

**Q14.**In the given figure, O is the point of intersection of two chords AB and CD such that  $OB = OD$  and  $\angle AOC = 45^\circ$ . Then,  $\triangle OAC$  and  $\triangle ODB$  are:

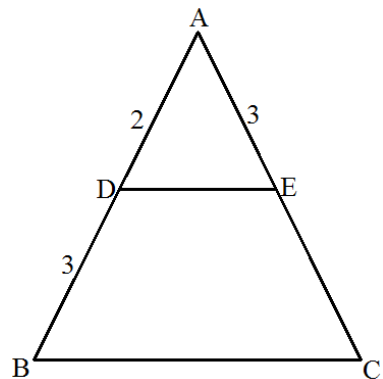
**1 Mark**



- A** Equilateral and similar.
**B** Equilateral but not similar.
**C** Isosceles and similar.
**D** Isosceles but not similar.

**Q15.**In the given figure, if  $\angle ADE = \angle ABC$ , then  $CE =$

**1 Mark**



- A** 2
**B** 5
**C**  $\frac{9}{2}$ 
**D** 3

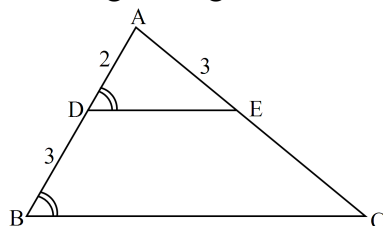
**Q16.**A vertical stick 20m long casts a shadow 10m long on the ground. At the same time, a tower casts a shadow 50m long on the ground. The height of the tower is:

**1 Mark**

- A** 100m.
**B** 120m.
**C** 25m.
**D** 200m.

**Q17.** In the given figure if  $\angle ADE = \angle ABC$ ,  $\angle ADE = \angle ABC$ , then CE is equal to:

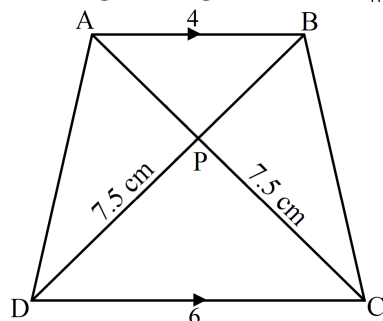
**1 Mark**



- A** 3.
**B**  $\frac{9}{2}$ 
**C** 2.
**D** 5.

**Q18.**In the given figure, if  $AB \parallel DC$  then AP is equal to:

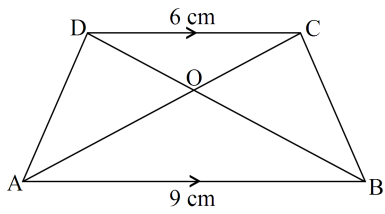
**1 Mark**



- A** 6cm.
**B** 7cm.
**C** 5.5cm.
**D** 5cm

**Q19.**In trapezium ABCD, if  $AB \parallel DC$ ,  $AB \parallel DC$ ,  $AB = 9\text{cm}$ ,  $DC = 6\text{cm}$  and  $BD = 12\text{cm}$ , then BO is equal to:

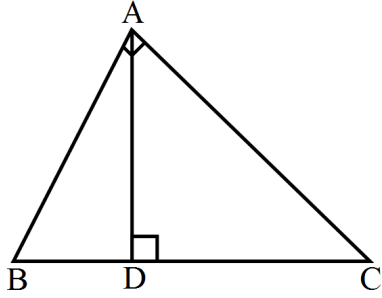
**1 Mark**



- A 7.4cm.                      B 7cm..                      C 7.5cm.                      D 7.2cm

**Q20.**In the given figure,  $\angle BAC = 90^\circ$  and  $AD \perp BC$ . Then:

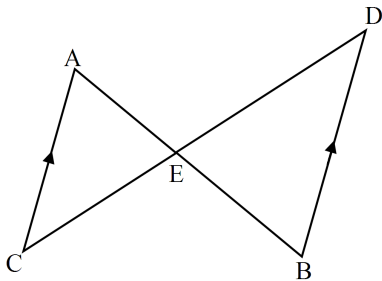
**1 Mark**



- A  $BC \cdot CD = BC^2$                       B  $AB \cdot AC = BC^2$                       C  $BD \cdot CD = AD^2$                       D  $AB \cdot AC = AD^2$

**Q21.**In the adjoining figure  $AC \parallel BD$ .  $AC \parallel BD$ . If ,  $EB = 4\text{cm}$ ,  $ED = 8\text{cm}$ ,  $AC = 6\text{cm}$ ,  $AE = 3\text{cm}$  then CE and BD are respectively:

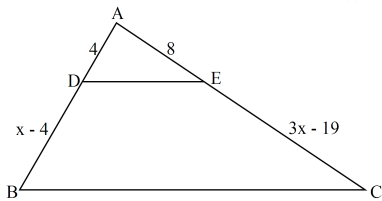
**1 Mark**



- A 7.5cm, 9.5cm.                      B 6cm, 8cm.                      C 4cm, 6cm.                      D 5cm, 7cm.

**Q22.**In the given figure if  $DE \parallel BC$ ,  $DE \parallel BC$ , then x is equal to:

**1 Mark**



- A 15.                      B 19.                      C 17.                      D 11.

**Q23.**A vertical stick 1.8m long casts a shadow 45cm long on the ground. At the same time, what is the length of the shadow of a pole 6m high?

**1 Mark**

- A 2.4m                      B 1.35m                      C 1.5m                      D 13.5m

**Q24.**If  $\triangle ABC \sim \triangle DEF$  such that  $DE = 3\text{cm}$ ,  $EF = 2\text{cm}$ ,  $DF = 2.5\text{cm}$ ,  $BC = 4\text{cm}$ , then perimeter of  $\triangle ABC$  is:

**1 Mark**

- A 18cm.                      B 20cm.                      C 12cm.                      D 15cm.

**Q25.**Which of the following is a true statement?

**1 Mark**

- A Two similar triangles are always congruent.                      B Two figures are similar if they have the same shape and size.  
C Two triangles are similar if their corresponding sides are proportional.  
D Two polygons are similar if their corresponding sides are proportional.

**Q26.**If  $\triangle ABC \sim \triangle DEF$  such that  $AB = 9.1\text{cm}$  and  $DE = 6.5\text{cm}$ . If the perimeter of  $\triangle DEF$  is 25cm, then the perimeter of  $\triangle ABC$  is:

**1 Mark**

- A 36cm.                      B 30cm.                      C 34cm.                      D 35cm.

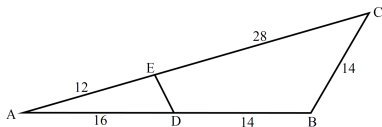
**Q27.**In a triangle, the perpendicular from the vertex to the base bisect the base. The triangle is:

**1 Mark**

- A Right-angled                      B Isosceles                      C Scalene                      D Obtuse-angled

**Q28.**In the given figure if  $\triangle AED \sim \triangle ABC$ , then DE is equal to:

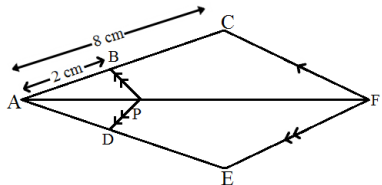
**1 Mark**



- A 5.6cm.                      B 6.5cm.                      C 7.5cm.                      D 5.5cm.

**Q29.**In the figure, if  $PB \parallel CF$  and  $DP \parallel EF$ , then  $\frac{AD}{DE} =$

**1 Mark**



- A  $\frac{3}{4}$ .                      B  $\frac{1}{3}$ .                      C  $\frac{1}{4}$ .                      D  $\frac{2}{3}$ .

### **ASSERTION AND REASON QUESTIONS**

**Q30.DIRECTION:** In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

**1 Mark**

**Assertion:** D and E are points on the sides AB and AC respectively of a  $\triangle ABC$  such that  $AB = 10.8\text{cm}$ ,  $AD = 6.3\text{cm}$ ,  $AC = 9.6\text{cm}$  and  $EC = 4\text{cm}$  then DE is parallel to BC.

**Reason:** If a line is parallel to one side of a triangle then it divides the other two sides in the same ratio.

- 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

**Q31. Assertion:** If  $\triangle ABC$  and  $\triangle PQR$  are congruent triangles, then they are also similar triangles.

**1 Mark**

**Reason:** All congruent triangles are similar but the similar triangles need not be congruent.

- 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.

**Q32. Assertion:** If a line intersects sides AB and AC of a  $\triangle ABC$  at D and E respectively and is parallel to BC, then  $\frac{AD}{AB} = \frac{AE}{AC}$

**1 Mark**

**Reason:** If a line is parallel to one side of a triangle then it divides the other two sides in the same ratio.

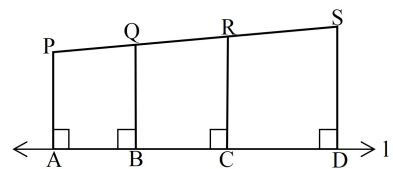
- A Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).  
 B Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).  
 C Assertion (A) is true but reason (R) is false.                      D Assertion (A) is false but reason (R) is true

**Q33. Assertion:** In the given figure,  $PA \parallel QB \parallel RC \parallel SD$ .

**1 Mark**

**Reason:** If three or more line segments are perpendicular to one line, then they are parallel to each other.

**Reason (R):** If three or more line segments are perpendicular to one line, then they are parallel to each other.



1. Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
2. Both assertion (A) and reason (R) are true but reason (R) is not the correct explanation of assertion (A).
3. Assertion (A) is true but reason (R) is false.
4. Assertion (A) is false but reason (R) is true.

- 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.

**Q34. 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.

**1 Mark**

**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.

**Q35. DIRECTION:** In the following questions, a statement of assertion (A) is followed by a statement of reason (R). Mark the correct choice as:

**1 Mark**

**Assertion:** D and E are points on the sides AB and AC respectively of a  $\triangle ABC$  such that  $DE \parallel BC$  then the value of x is 4, when  $AD = x\text{ cm}$ ,  $DB = (x - 2)\text{cm}$ ,  $AE = (x + 2)\text{ cm}$  and  $EC = (x - 1)\text{cm}$ .

**Reason:** If a line is parallel to one side of a triangle then it divides the other two sides in the same ratio.

- 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