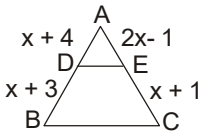
SHIKSHA CLASSES

Sub. : Maths. | **Question Paper** | **Total Marks : 30**
Std. X (CBSE) | **6 : Triangles** | **Time : 1 hour**

Section : A (Each 1 Mark)

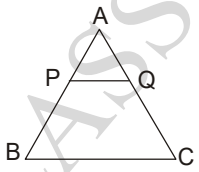
Multiple choice Questions (MCQs).

Q.1 : In fig, DE || BC find the value of x.



a) $\sqrt{5}$ b) $\sqrt{6}$ c) $\sqrt{3}$ d) $\sqrt{7}$

Q.2 : In fig. PQ ||BC if $\frac{PQ}{BC} = \frac{2}{5}$, then $\frac{AP}{PB}$ is ....

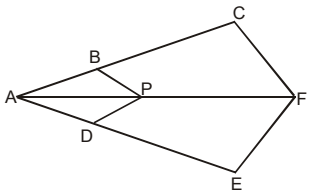


a) $\frac{2}{5}$ b) $\frac{2}{3}$ c) $\frac{3}{2}$ d) $\frac{3}{5}$

Q.3 : If $\Delta ABC \sim \Delta PQR$, perimeter of ΔABC = 20 cm, perimeter of ΔPQR= 40 cm and PR = 8 cm then AC is

a) 8 cm b) 6 cm c) 4 cm d) 5 cm

Q.4 : In fig, if PB || FC and DP || EF, AB = 2 cm, AC = 8 cm, then $\frac{AD}{DE}$



a) $\frac{3}{4}$ b) $\frac{1}{3}$ c) $\frac{1}{4}$ d) $\frac{2}{3}$

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Q.5 : A vertical stick 20 m long casts a shadow 10 m long on the ground. At the same time, a tower casts a shadow 50 m long on the ground. The height of the tower is

a) 100 m b) 120 m c) 25 m d) 200 m

Q.6 : Two poles of height 6 m and 11 m stand vertically upright on a plane ground. If the distance between their foots is 12 m, the distance between their tops is .....

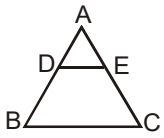
a) 12 m b) 14 m c) 13 m d) 11 m

Q.7 : If in two triangle ABC and DEF, $\frac{AB}{DE} = \frac{BC}{FE} = \frac{CA}{FD}$, then

a) $\Delta FDE \sim \Delta CAB$ b) $\Delta FDE \sim \Delta ABC$

c) $\Delta CBA \sim \Delta FDE$ d) $\Delta BCA \sim \Delta FDE$

Q.8 : In fig. DE || BC, AD = 4cm, DB = 6 cm and AE = 5 cm, then EC is



a) 6.5 cm b) 7 cm c) 7.5 cm d) 8 cm

Q.9 : Rohit is 6 feet tall at an instant his shadow is 5 feet long. At the same instant, the shadow of a pole is 30 feet long. How tall is the pole?

a) 12 feet b) 24 feet c) 30 feet d) 36 feet

For question number 10 to 11 two statements are given one labeled Assertion and other labeled Reason select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below

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).

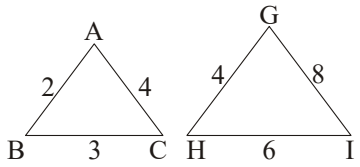
c) Assertion (A) is true but reason (R) is false.

d) Assertion (A) is false but reason (R) is true.

Q.10 : **Assertion (A):** If ΔABC and ΔPQR are congruent triangles, then they are also similar triangles.

Reason (R): All congruent triangles are similar but the similar triangles need not be congruent.

Q.11 : **Assertion (A):** In the given figures, $\Delta ABC \sim \Delta GHI$.



Reason (R): If the corresponding sides of two triangles are proportional, then they are similar.

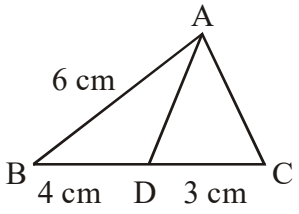
Section : B (Each 2 Marks)

Q.12 : In fig.,

AD is the bisector of $\angle A$;

If BD = 4 cm, DC = 3 cm and

AB = 6 cm determine AC.



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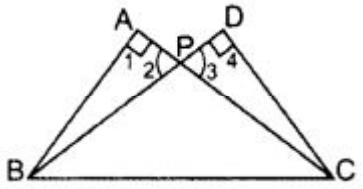
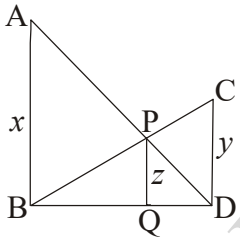
OR

In the figure ABC and DBC are two right triangles.

Prove that AP × PC = BP × PD.



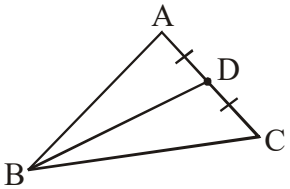
Q.13 : In Fig. AB || PQ || CD , AB = x units, CD = y units and PQ = z units. Prove that $\frac{1}{x}+\frac{1}{y}=\frac{1}{z}$.



Section : C (Each 3 Marks)

Q.14 : If the diagonals of a quadrilateral divide each other proportionally, prove that it is a trapezium.

OR

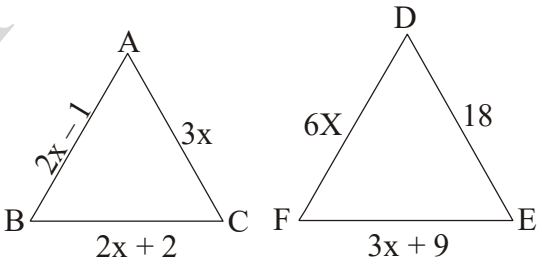


In ΔABC, AB = AC and

D is midpoint of on side AC such that

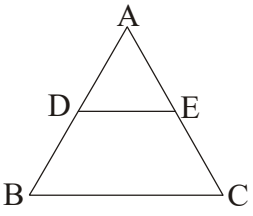
$BC^2 = AC \times CD$, Prove that BD = BC.

Q.15 : In Fig, if ΔABC ~ ΔDEF and their sides are of lengths (in cm) as marked along with them, then find the lengths of the sides of each triangle.



Section - D(Each 5 Marks)

Q.16 : Through the mid point M of the side CD of a parellelogram ABCD, the line BM is drawn intersecting AC in L and AD produced in E prove that EL = 2BL.



OR

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Prove that, if a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio.

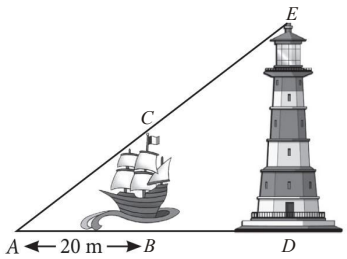
Using the above result, do the following:

In Fig. DE || BC and BD = CE. Prove that "ABC is an isosceles triangle.

Section : E

Q.17 : **Case study :**

Shweta went to a beach with her uncle. From a point A where Shweta was standing, a ship and light house come in a straight line as shown in the figure.



i) Which similarity criteria can be seen in this case, if ship and lighthouse are considered as straight lines? 1

ii) The distance between Shweta and the ship is twice as much as the height of the ship. What is the height of the ship? 1

iii) If the distance of Shweta from the lighthouse is twelve times the height of the ship, then find the ratio of the heights of ship and lighthouse. 2

OR

What is the height of the lighthouse?

❄ ❄ ❄

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