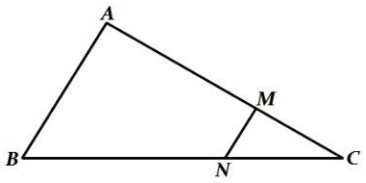
Previous Year Boards Questions

Chapter 6 – Triangles

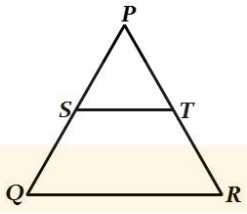
1 Mark:

1. In Figure $MN \parallel AB, BC = 7.5\ cm, AM = 4\ cm$ and $MC = 2\ cm$. Find the length BN.



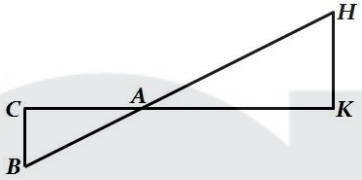
CBSE 2010, Foreign (30/2/1)

2. If Fig. S and T are points on the sides PQ and PR, respectively of $\Delta\ PQR$, such that $PT = 2\ cm, TR = 4$ and ST is parallel to QR. Find the ratio of the areas of ΔPST and ΔPQR.



CBSE 2010, Delhi (30/1/1)

3. In Fig. $\Delta\ AHK$ is similar to $\Delta\ ABC$. If $AK = 10\ cm, BC = 3.5\ cm$ and $HK = 7\ cm$, find AC.



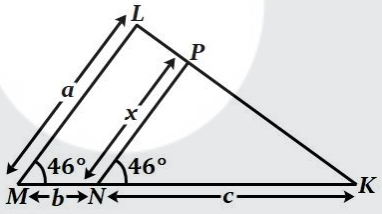
CBSE 2010, Delhi (30/1/1)

4. In $\Delta LMN, \angle L = 50°$ and $\angle N = 60°$. If $\Delta LMN \sim \Delta PQR$, then find $\angle Q$. **CBSE 2009, Outside Delhi (30/1)**

5. In a $\Delta ABC, DE \parallel BC$. If $DE = \frac{2}{3}BC$ and area of $\Delta ABC = 81\ cm^2$, find the area of ΔADE.

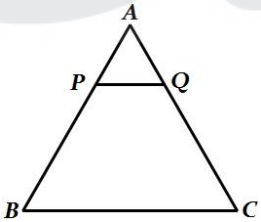
CBSE 2009, Foreign (30/2/1)

6. In Figure, $\angle M = \angle N = 46°$. Express x in terms of a, b and c where a, b and c are lengths of LM, MN and NK respectively.



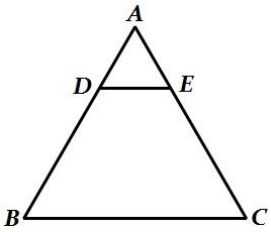
CBSE 2009, Delhi (30/1/1)

7. In Figure, $PQ \parallel BC$ and $AP : PB = 1 : 2$. Find $\frac{ar(\Delta APQ)}{ar(\Delta ABC)}$.



CBSE 2008 (30/2/1), (30/2/2), (30/2/3)

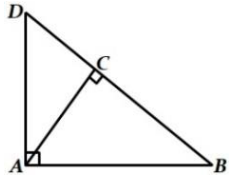
8. In the given figure, DE is parallel to BC and $AD = 1\ cm, BD = 2\ cm$. What is the ratio of the area of ΔABC to the area of ΔADE?



CBSE Sample Paper I 2008

2 Marks:

1. In Figure, ΔABD is a right triangle, right-angled at A and $AC \perp BD$.
   Prove that $AB^2 = BC.BD$.

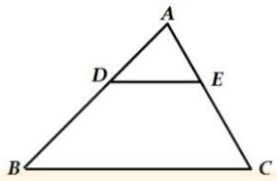


CBSE 2009, Outside Delhi (30/1)

2. E is a point on the side AD produced of a parallelogram $ABCD$ and BE intersects CD at F. Show that $\Delta ABE \sim \Delta CFB$.

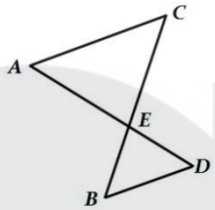
CBSE 2008 (30/2/1), (30/2/2), (30/2/3)

3. In the figure given below, $DE \parallel BC$. If $AD = 2.4\ cm, DB = 3.6\ cm$ and $AC = 5\ cm$ Find AE.



CBSE Sample Paper II 2008

4. In the figure given below, AC is parallel to BD,
   Is $\frac{AE}{CE} = \frac{DE}{BE}$? Justify your answer.



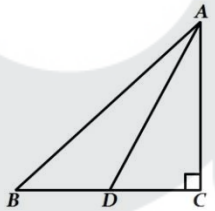
CBSE Sample Paper I 2008

3 Marks:

1. In ΔABC, right-angled at A, BL and CM are the two medians. Prove that $4(BL^2 + CM^2) = 5BC^2$.

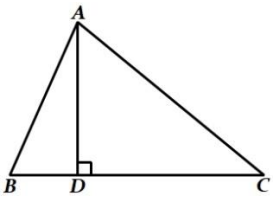
CBSE 2010, Foreign (30/2/1)

2. In Fig. ABC is a right triangle, right angled at C and D is the mid-point of BC. Prove that $AB^2 = 4AD^2 - 3AC^2$.



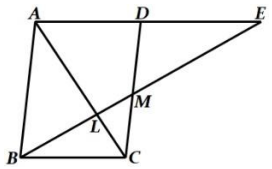
CBSE 2010, Delhi (30/1/1)

3. In Figure, $AD \perp BC$ and $BD = \frac{1}{3}CD$. Prove that $2CA^2 = 2AB^2 + BC^2$.



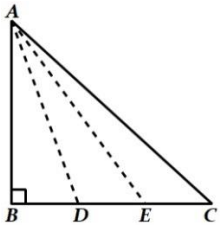
OR

In Figure, M is mid-point of side CD of a parallelogram $ABCD$. The line BM is drawn intersecting AC at L and AD produced at E. Prove that $EL = 2\ BL$.



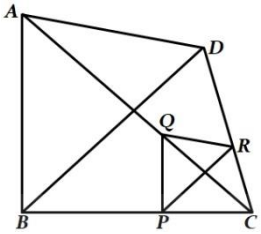
CBSE 2009, Outside Delhi (30/1)

4. In Figure, ΔABC is right angled at B. D and E trisect BC. Prove that $8\ AE^2 = 3\ AC^2 + 5\ AD^2$.



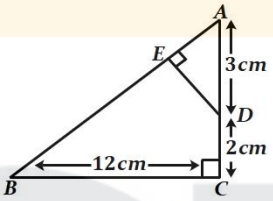
CBSE 2009, Foreign (30/2/1)

5. In Figure, two triangles ABC and DBC lie on the same side of base BC. P is a point on BC such that $PQ \parallel BA$ and $PR \parallel BD$. Prove that $QR \parallel AD$.



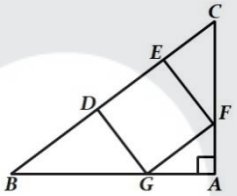
CBSE 2009, Foreign (30/2/1)

6. In Figure, ΔABC is right angled at C and $DE \perp AB$. Prove that $\Delta ABC \sim \Delta ADE$ and hence find the lengths of AE and DE.



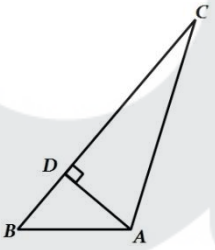
OR

In Figure, $DEFG$ is a square and $\angle BAC = 90°$. Show that $DE^2 = BD \times EC$.



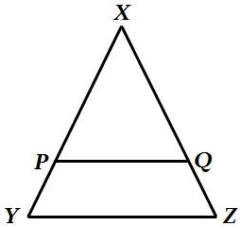
CBSE 2009, Delhi (30/1/1)

7. In Fig., $AD \perp BC$. Prove that $AB^2 + CD^2 = BD^2 + AC^2$



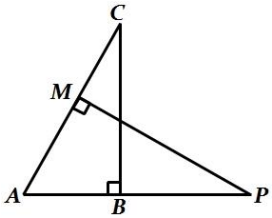
CBSE 2008 (30/2/1), (30/2/2), (30/2/3)

8. In Fig., $\frac{XP}{PY} = \frac{XQ}{QZ} = 3$, if the area of XYZ is 32 cm^2, then find the area of the quadrilateral $PYZQ$.



CBSE Sample Paper III 2008

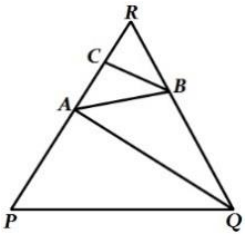
9. In the fig., ABC and AMP are right angled at B and M respectively. Prove that $CA \times MP = PA \times BC$



CBSE Sample Paper III 2008

6 marks:

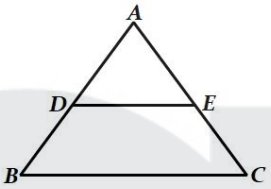
1. If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, prove that the other two sides are divided in the same ratio.
   Using the above, do the following:
   In Figure $PQ \parallel AB$ and $AQ \parallel CB$. Prove that $AR^2 = PR \cdot CR$.



CBSE 2010, Foreign (30/2/1)

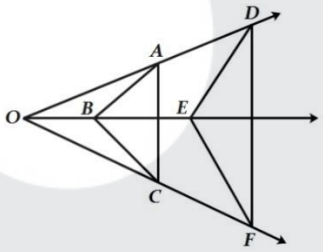
2. Prove that the ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides.
   The area of the equilateral triangle described on the side of a square is half the area of the equilateral triangle described on its diagonal.
   CBSE 2009, Foreign (30/2/1)

3. 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 Figure, $DE \parallel BC$ and $BD = CE$. Prove that ΔABC is an isosceles triangle.



CBSE 2009, Delhi (30/1/1)

4. If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, prove that the other two sides are divided in the same ratio.
   Using the above, prove the following:
   In Fig.. $AB \parallel DE$ and $BC \parallel EF$. Prove that $AC \parallel DF$.



CBSE 2008 (30/2/1), (30/2/2), (30/2/3)

5. Prove that the ratio of areas of two similar triangles is equal to the square of the ratio of their corresponding sides.
   Use the above theorem, in the following:
   The areas of two similar triangles are 81 cm^2 and 144 cm^2. If the largest side of the smaller triangle is 27 cm, find the largest side of the larger triangle.
   CBSE Sample Paper II 2008

6. Prove that in a right triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides.
   Use the above theorem, in the following.
   If ABC is an equilateral triangle with $AD \perp BC$, then $AD^2 = 3\,DC^2$.
   CBSE Sample Paper II 2008