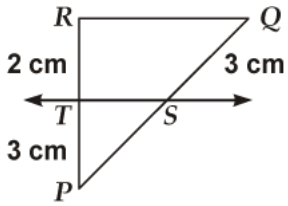
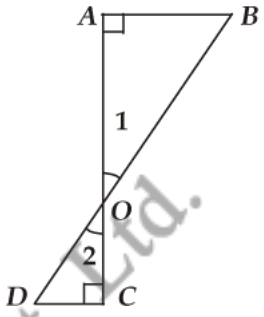
Date: 29/9/2021

Q1. In figure, if $ST \parallel QR$. Find PS.



Q2. In figure, if $\angle A = \angle C$, then prove that $\Delta AOB \sim \Delta COD$.



Q3. If the areas of two similar triangles ABC and PQR in the ratio 9 : 16 and $BC = 4.5$ cm, what is the length of QR?

Q4. If ABC and DEF are similar triangles such that $\angle A = 57°$, and $\angle E = 73°$, what is the measure of $\angle C$?

Q5. A right triangle has hypotenuse of length p cm and one side of length q cm. If $p - q = 1$, find the length of the third side of the triangle.

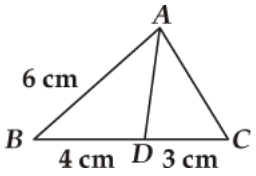
Q6. A man goes 10 m due east and then 24 m due north. Find the distance from the starting point.

Q7. In a ΔABC, AD is the bisector of $\angle A$, meeting side BC at D. If $AB = 10$ cm, $AC = 6$ cm and $BC = 12$ cm, find BD and DC.

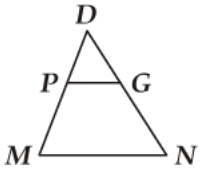
Q8. In a ΔABC, AD is the bisector of $\angle A$, meeting side BC at D. If $AD = 5.6$ cm, $BC = 6$ cm and $BD = 3.2$ cm, find AC.

Q9. In a ΔABC, AD is the bisector of $\angle A$, meeting side BC at D. If $AB = 5.6$ cm, $AC = 6$ cm and $DC = 3$ cm, find BC.

Q10. In figure, AD is the bisector of $\angle A$. If $BD = 4$ cm, $DC = 3$ cm and $AB = 6$ cm, determine AC.

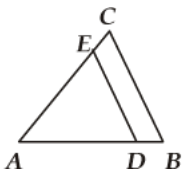


Q11. As shown in figure, PQ is parallel to MN. If $\frac{KP}{PM} = \frac{4}{13}$ and $KN = 20.4$ cm. Find KQ.

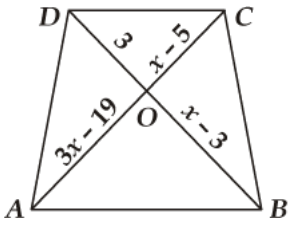


Q12. In a given ΔABC, $DE \parallel BC$ and $\frac{AD}{DB} = \frac{3}{5}$. If $AC = 5.6$, find AE.

Q13. In figure, $DE \parallel BC$. If $AD = x$, $DB = x - 2$, $AE = x + 2$ and $EC = x - 1$, find the value of x.



Q14. In figure, $AB \parallel DC$. Find the value of x.



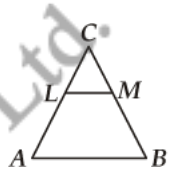
Q15. In a ΔABC, D and E are points on the sides AB and AC respectively such that $DE \parallel BC$. If $AD = 8x - 7$, $DB = 5x - 3$, $AE = 4x - 3$ and $EC = (3x - 1)$, find the value of x.

Q16. In a ΔABC, D and E are points on the sides AB and AC respectively such that $DE \parallel BC$. If $\frac{AD}{DB} = \frac{3}{4}$ and $EC = 2.5$ cm, find AE.

Q17. In a ΔABC, D and E are points on the sides AB and AC respectively such that $DE \parallel BC$. If $\frac{AD}{DB} = \frac{3}{4}$ and $AC = 18$ cm, find AE.

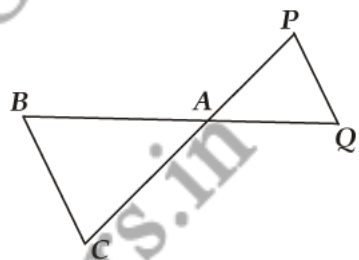
Q18. In a ΔABC, D and E are points on the sides AB and AC respectively such that $DE \parallel BC$. If $\frac{AD}{DB} = \frac{3}{4}$ and $AC = 15$ cm, find AE.

Q19. In figure, $LM \parallel AB$. If $AL = x - 3$, $AC = 2x$, $BM = x - 2$ and $BC = 2x + 3$, find the value of x.

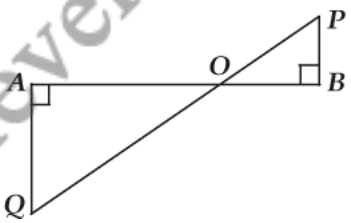


Q20. D and E are respectively the points on the sides AB and AC of a ΔABC such that $AB = 5.6$ cm, $AD = 1.4$ cm, $AC = 7.2$ cm and $AE = 1.8$ cm, show that $DE \parallel BC$.

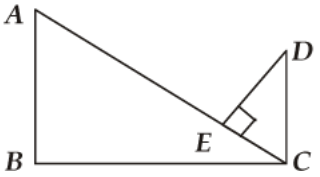
Q21. In figure, $\Delta ACB \sim \Delta APQ$. If $BC = 8$ cm, $PQ = 4$ cm, BA 6.5 cm, $AP = 2.8$ cm, find CA and AQ.



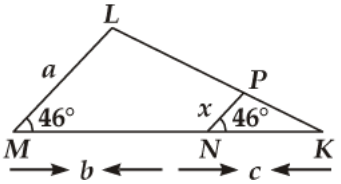
Q22. In figure, QA and PB are perpendiculars to AB. If $AO = 10$ cm, $BO = 6$ cm, $PB = 9$ cm. Find AQ.



Q23. In figure, if $AB \perp BC$, $DC \perp BC$ and $DE \perp AC$, prove that $\Delta CED \sim \Delta ABC$.

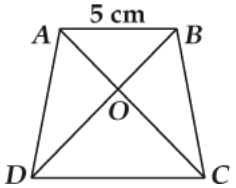


Q24. In figure, express x in terms of a, b and c.



Q25. In a ΔABC, BD and CE are the altitudes. Prove that ΔADB and ΔAEC are similar. Is $\Delta CDB \sim \Delta BEC$?

Q26. In figure, $\frac{AO}{OC} = \frac{BO}{OD} = \frac{1}{2}$ and $AB = 5$ cm. Find the value of DC.



Q27. ABC is a triangle in which $\angle A = 90°$, $AN \perp BC$, $BC = 12$ cm and $AC = 5$ cm. Find the ratio of the areas of ΔANC and ABC.

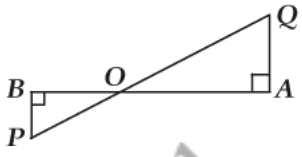
Q28. The corresponding altitudes of two similar triangles are 6 cm and 9 cm respectively. Find the ratio of their areas.

Q29. The areas of two similar triangles are 25 cm^2 and 36 cm^2 respestively. If the altitude of the first triangle is 2.4 cm find the corresponding altitude of the other.

Q30. Two isosceles triangles have equal vertical angles and their areas are in the ratio 36 : 25. Find the ratio of their corresponding heights.

Q31. The areas of two similar triangles are 169 cm^2 and 121 cm^2 respectively. If the longest side of the larger triangle is 26 cm, find the longest side of the smaller triangle.

Q32. In figure, PB and QA are perpendiculars to segment AB. If $PO = 5$ cm, $QO = 7$ cm and area $\Delta POB = 150$ cm^2, find the area of ΔQOA.



Q33. If $\Delta ABC \sim \Delta DEF$ such that area of ΔABC is 9 cm^2 and the area of ΔDEF is 16 cm^2 and $BC = 2.1$ cm. Find the length of EF.

Q34. If ΔABC is similar to ΔDEF such that $BC = 3$ cm, $EF = 4$ cm and area of $\Delta ABC = 54$ cm^2. Determine the area of ΔDEF.

Q35. In two similar triangles ABC and PQR, if their corresponding altitudes AD and PS are in the ratio 4 : 9, find the ratio of the areas of ΔABC and PQR.

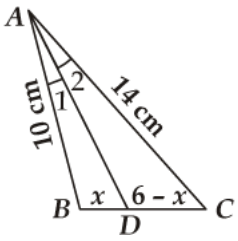
Q36. If $\Delta ABC \sim \Delta DEF$ such that $AB = 1.2$ cm and $DE = 1.4$ cm. Find the ratio of areas of ΔABC and ΔDEF.

Q37. In ΔABC and ΔDEF are similar triangles such that $AB = 3$ cm, $BC = 2$ cm, $CA = 2.5$ cm and $EF = 4$ cm, write the perimeter of ΔDEF.

Q38. The areas of two similar triangles are 169 cm^2 and 121 cm^2 respectively. If the longest side of the larger triangle is 26 cm, what is the length of the longest side of the smaller triangle?

Q39. In ΔABC, D and E the mid-points of AB and AC respectively. Find the ratio of the areas of ΔADE and ΔABC.

Q40. In figure, AD is the bisector of BAC. If $AB = 10$ cm, $AC = 14$ cm and $BC = 6$ cm, find BD and DC.



Q41. In a quadrilateral $ABCD$, $\angle B = 90°$, $AD^2 = AB^2 + BC + CD^2$, prove that $\angle ACD = 90°$.

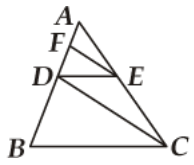
Q42. Each side of a rhombus is 10 cm. If one of its diagonals is 16 cm find the length of other diagonal.

Q43. The lengths of the diagonals of a rhombus are 24 cm and 10 cm. Find each side of the rhombus.

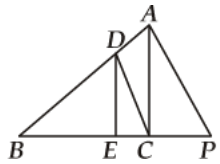
Q44. In an isosceles triangle ABC, if $AB = AC = 13$ cm and the altitude from A on BC is 5 cm, find BC.

Q45. A ladder 15 m long reaches a window which is 9 m above the ground on one side of a street. Keeping its foot at the same point, the ladder is turned to other side of the street to reach a window 12 m. Find the width of the street.

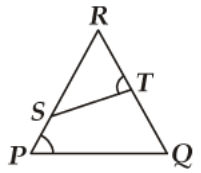
Q46. In figure, if $DE \parallel BC$ and $CD \parallel EF$. Prove that $AD^2 = AB \times AF$.



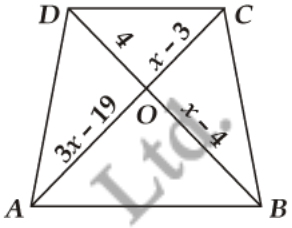
Q47. In figure, if $DE \parallel AC$ and $DC \parallel AP$. Prove that $\frac{BE}{EC} = \frac{BC}{CP}$



Q48. In figure, if $AB \perp BC$ and $DE \perp AC$. Prove that $\Delta ABC \sim \Delta AED$.



Q49. In figure, $AB \parallel CD$. If $OA = 3x - 19$, $OC = x - 4$, $OC = x - 3$ and $OD = 4$, find x.



Q50. In a ΔABC, D and E are points on AB and AC respectively such that $DE \parallel BC$. If $AD = 2.4$ cm, $AE = 3.2$ cm, $DE = 2$ cm and $BC = 5$ cm, find BD and CE.

Q51. In a ΔABC, D and E are points on the sides AB and AC respectively such that $DE \parallel BC$. If $AD = 2.5$ cm, $BD = 3.0$ cm and $AE = 3.75$ cm, find the length of AC.

Q52. In a ΔABC, D and E are points on the sides AB and AC respectively such that $DE \parallel BC$. If $AD = 4x - 3$, $AE = 8x - 7$, $BD = 3x - 1$ and $CE = 5x - 3$, find the value of x.

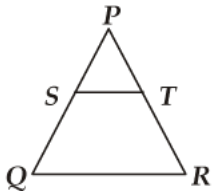
Q53. The areas of two similar triangles ABC and PQR are in the ratio 9 : 16. If $BC = 4.5$ cm, find the length of QR.

Q54. The areas of two similar triangles are 121 cm^2 and 64 cm^2 respectively. If the median of the first triangle is 12.1 cm, find the corresponding median of the other.

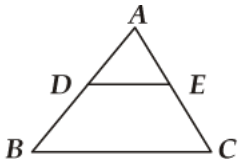
Q55. The areas of two similar triangles are 100 cm^2 and 49 cm^2 respectively. If the altitude of the bigger triangle is 5 cm, find the corresponding altitude of the other.

Q56. In the trapezium $ABCD$, $AB \parallel CD$ and $AB = 2CD$. If the area of $\Delta AOB = 84$ cm^2, find the area of ΔCOD.

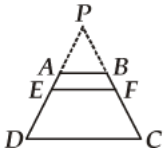
Q57. In figure, S and T are points on the sides PQ and PR respectively of ΔPQR such that $PT = 2$ cm, $TR = 4$ cm and ST is parallel to QR. Find the ratio of the areas of ΔPST and ΔPQR.



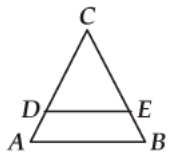
Q58. In figure, $DE \parallel BC$ and $AD = \frac{1}{2} BD$. If $BC = 4.5$ cm, find DE.



Q59. In figure, if $EF \parallel DC \parallel AB$. Prove that $\frac{AE}{ED} = \frac{BE}{FC}$.



Q60. In figure, if $\frac{AD}{DC} = \frac{BE}{EC}$ and $\angle CDE = \angle CED$, prove that ΔCAB is isosceles.



Q61. In a ΔABC, D and E are points on sides AB and AC respectively such that $BD = CE$. If $\angle B = \angle C$, show that $DE \parallel BC$.

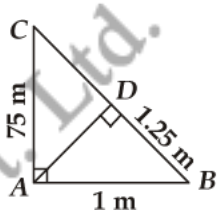
Q62. Let ABC be a triangle and D and E be two points on side AB such that $AD = BE$. If $DP \parallel BC$ and $EQ \parallel AC$, then prove that $PQ \parallel AB$.

Q63. $ABCD$ is a parallelogram, P is a point on side BC and DP when produced meets AB produced at L. Prove that

(i) $\frac{DP}{PL} = \frac{DC}{BL}$ (ii) $\frac{DL}{DP} = \frac{AL}{DC}$

Q64. Let X be any point on the side BC of a triangle ABC. If XM, XN are drawn parallel to BA and CA meeting CA, BA in M, N respectively. MN meets BC produced in T, prove that $TX^2 = TB \times TC$.

Q65. In figure, $\angle CAB = 90°$ and $AD \perp BC$. If $AC = 75$ cm, $AB = 1$ m and $BD = 1.25$ cm, find AD.



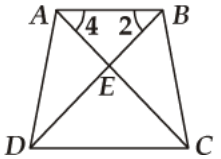
Q66. Prove that the line segments joining the mid-points of the adjacent sides of a quadrilateral form a parallelogram.

Q67. Prove that any line parallel to the parallel sides of a trapezium divides the non-parallel sides proportionally.

Q68. The diagonal BD of a parallelogram $ABCD$ intersects the segment AE at the point F, where E is any point on the side BC. Prove that $DF \times EF = FB \times FA$.

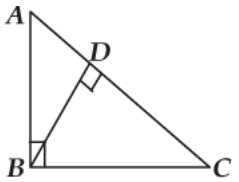
Q69. The perimeters of two similar triangles are 30 cm and 20 cm respectively. If one side of the first triangle is 12 cm, determine the corresponding side of the second triangle.

Q70. In figure, $ABCD$ is a trapezium with $AB \parallel DC$. If ΔAED is similar to ΔBEC, prove that $AD = BC$.

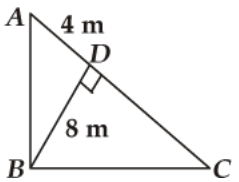


Q71. ABC is an isosceles triangle with $AB = AC$ and D is a point on AC such that $BC^2 = AC \times CD$. Prove that $BD = BC$.

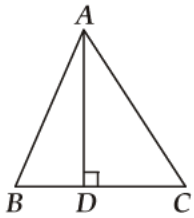
Q72. In figure, $\angle ABC = 90°$ and $BD \perp AC$. If $AB = 5.7$ cm, $BD = 3.8$ cm, and $CD = 5.4$ cm, find BC.



Q73. In figure, $\angle ABC = 90°$ and $BD \perp AC$. If $BD = 8$ cm and $AD = 4$ cm, find CD.



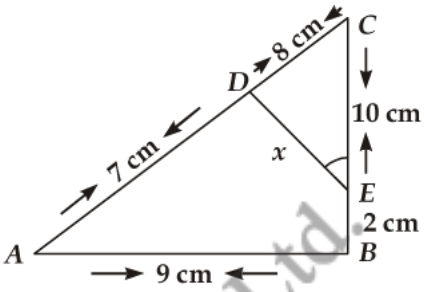
Q74. In figure, if $AD \perp BC$ and $\frac{BD}{DA} = \frac{DA}{DC}$, prove that ΔABC is a right triangle.



Q75. 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.

Q76. In ΔABC, let P and Q be points on AB and AC respectively such that $PQ \parallel BC$. Prove that the median AD bisects PQ.

Q77. In figure, $\angle A = \angle CED$, prove that $\Delta CAB \sim \Delta CED$. Also, find the value of x.

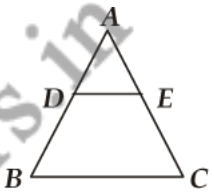


Q78. $ABCD$ is a square. F is the mid-point of AB. BE is one third of BC. If the area of $\Delta FBE = 108\ cm^2$, find the length of AC.

Q79. In a right triangle if a perpendicular is drawn from the right angle to the hypotenuse, prove that the square of the perpendicular is equal to the rectangle contained by the two segments of the hypotenuse.

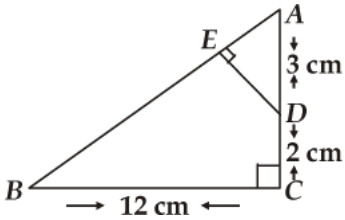
Q80. In an isosceles triangle ABC with $AB = AC$, BD is perpendicular from B to the side AC. Prove that $BD^2 - CD^2 = 2CD \cdot AD$.

Q81. In figure, $DE \parallel BC$. If $DE : BC = 3 : 5$. Calculate the ratio of the areas of ΔADE and the trapezium $BCED$.



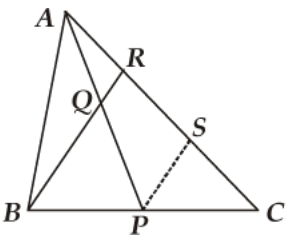
Q82. Prove that the area of the triangle BCE described on one side BC of a square $ABCD$ as base is one half the area of the similar triangle ACE described on the diagonal AC as base.

Q83. 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.



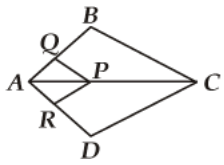
Q84. ABC is a right triangle right-angled at C and $AC = \sqrt{3}\,BC$. Prove that $\angle ABC = 60°$.

Q85. In figure, P is the mid-point of BC and Q is the mid-point of AP. If BQ when produced meets AC at R, prove that $RA = \frac{1}{3}\,CA$.



Q86. If D and E are points on sides AB and AC respectively of a ΔABC such that $DE \parallel BC$ and $BD = CE$. Prove that ΔABC is isosceles.

Q87. In figure, if $PQ \parallel BC$ and $PR \parallel CD$. Prove that



(a) $\frac{AR}{AD} = \frac{AQ}{AB}$ (ii) $\frac{QB}{AQ} = \frac{DR}{AR}$

Q88. In ΔABC, D is the mid-point of BC and ED is the bisector of the $\angle ADB$ and EF is drawn parallel to BC cutting AC in F. Prove that $\angle EDF$ is a right angle.

Q89. In a right ΔABC right-angled at C, if D is the mid-point of BC, prove that $BC^2 = 4(AD^2 - AC^2)$.

Q90. $ABCD$ is a quadrilateral in which $AB = AD$. The bisector of $\angle BAC$ and $\angle CAD$ intersect the sides BC and CD at the points E and E respectively. Prove that $EF \parallel BD$.

Q91. ABC is a triangle and PQ is a straight line meeting AB in P and AC in Q. If $AP = 1$ cm, $PB = 3$ cm, $AQ = 1.5$ cm, $QC = 4.5$ cm, prove that area of ΔAPQ is one-sixteenth of the area of ΔABC.

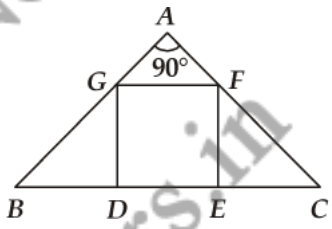
Q92. D and E are points on the sides AB and AC respectively of a ΔABC such that $DE \parallel BC$ and divides ΔABC into two parts, equal in area, find .

Q93. Equilateral triangles are drawn on the sides of a right triangle. Show that the area of the triangle on the hpotenuse is equal to the sum of the areas of triangles on the other two sides.

Q94. The perimeters of two similar triangles are 25 cm and 15 cm respectively. If one side of first triangle is 9 cm, what is the corresponding side of the other triangle?

Q95. In ΔABC, DE is parallel to base BC, with D on AB and E on AC, If $\frac{AD}{DB} = \frac{2}{3}$, find $\frac{BC}{DE}$.

Q96. In figure, $DEFG$ is a square and $\angle BAC = 90°$. Prove that



(i) $\Delta AGF \sim \Delta DBG$ (ii) $\Delta AFD \sim \Delta EDC$

(iii) $\Delta DBG \sim \Delta EFC$ (iv) $DE^2 = BD \times EC$

Q97. Through the mid-point M of the side CD of a parallelogram $ABCD$, the line BN is drawn intersecting AC in L and AD produced in E. Prove that $EL = 2BL$.

Q98. Two triangles BAC and BDC, right angled at A and D respectively, are drawn on the same base BC and on the same side of BC. If AC nd DB intersect at P, prove that $AP \times PC = DP \times PB$.

Q99. D is a point on the side BC of $\angle ABC$ such that $\angle ADC = \angle BAC$. Prove that $\frac{CA}{CD} = \frac{CB}{CA}$ or $CA^2 = CB \times CD$.

Q100. In an equilateral triangle with side a, prove that

(i) Altitude $= \frac{a\sqrt{3}}{2}$ (ii) Area $= \frac{\sqrt{3}}{4}a^2$

Q101. Prove that three times the square of any side of an equilateral-triangle is equal to four times the square of the altitude.

Q102. ABC is a right triangle right-angled at B. Let D and E be any points on AB and BC respectively. Prove that $AE^2 + CD^2 = AC^2 + DE^2$.

Q103. P and Q are the mid-points of the sides CA and CB respectively of a ΔABC, right angled at C. Prove that $4(AQ^2 + BP^2) = 5AB^2$.

Q104. AD is an altitude of an equilateral triangle ABC., On AD as base, another equilateral triangle ADE is constructed. Prove that Area (ΔADE) : Area $(\Delta ABC) = 3 : 4$

Q105. If D is a point on the side AB of ΔABC such that $AD : DB = 3.2$ and E is a point on BC such that $DE \parallel AC$. Find the ratio of areas of ΔABC and ΔBDE.

Q106. If ΔABC and ΔBDE are equilateral triangles, where D is the mid-point of BC, find the ratio of areas of ΔABC and ΔBDE.

Q107. In an equilateral ΔABC, $AD \perp BC$, prove that $AD^2 = AD^2 = 3BD^2$.

Q108. In right-angled triangle ABC in which $\angle C = 90°$, if D is the mid-point of BC, prove that $AB^2 = 4AD^2 - 3AC^2$.

Q109. In an equilateral ΔABC, $AD \perp BC$, prove that $AD^2 = 3BD^2$.

Q110. ABC is a right-angled triangle right angled at A. A circle is inscribed in it the lengths of the two sides containing te right angle are 6 cm are 6 cm and 8 cm. Find the radius of the circle.

Q111. ABC is an isosceles triangle right-angled at B. Similar triangles ACD and ABE are constructed on sides AC and AB. Find the ratio between the areas of ΔABE and ΔACD.

Q112. In a ΔABC, $AD \perp BC$ and $AD^2 = BD \times CD$. Prove that ΔABC is a right triangle.

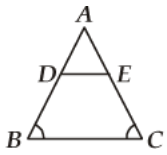
Q113. In a triangle ABC, $AC > AB$, D is the mid-point of BC and $AE \perp BC$. Prove that $AB^2 = AD^2 - BC \cdot DE + \frac{1}{4} BC^2$.

Q114. In ΔABC, AD is perpendicular to BC. Prove that

(i) $AB^2 + CD^2 = AC^2 + BD^2$ (ii) $AB^2 - BD^2 = AC^2 - CD^2$

Q115. ABC is a triangle in which $AB = AC$ is any point in BC. Prove that $AB^2 - AD^2 = BD \cdot CD$.

Q116. In figure, ABC is a triangle in which $AB = AC$. Points D and E are points on the sides AB and AC respectively such that $AD = AE$. Show that the points B, C, E and D are concyclic.



Q117. $ABCD$ is a quadrilateral; P, Q, R and S are the points of trisection of sides AB, BC, CD and DA respectively and are adjacent to A and C; prove that $PQRS$ is a parallelogram.

Q118. Two triangles ABC and DBC lie on the same side of the base BC. From a point P on BC, $PQ \parallel AB$ and $PR \parallel BD$ are drawn. They meet AC in Q and DC in R respectively. Prove that $QR \parallel AD$.

Q119. Two poles of height a metres and b metres are p metres apart. Prove that the height of the point of intersection of the lines joining the top of each pole to the foot of the opposite pole is given by $\frac{ab}{a+b}$ metres.

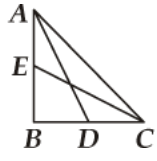
Q120. P and q are points on sides AB and AC respectively, of ΔABC. If $AP = 3$ cm, $PB = 6$ cm $AQ = 5$ cm and $QC = 10$ cm, show that $BC = 3PQ$.

Q121. The side BC of a triangle ABC is bisected at D; O is any point in AD, BO and CO produced meet AC and AB in E and F respectively and AD is produced to X so that D is the mid-point of OX. Prove that $AO : AX = AF : AB$ and show that $FE \parallel BC$.

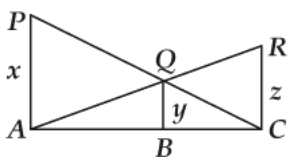
Q122. In a right triangle ABC right-angled at C, P and Q are the points on the sides CA and CB respectively, which divide these sides in the ratio 2 : 1. Prove that

(i) $9AQ^2 = 9AC^2 + 4BC^2$ (ii) $9BP^2 = 9BC^2 + 4AC^2$ (iii) $9(AQ^2 + BP^2) = 13AB^2$

Q123. In figure, ABC is a right triangle right-angled at B. AD and CE are the two medians drawn from A and C respectivelt. If $AC = 5$ cm and $AD = \frac{3\sqrt{5}}{2}$, find the length of CE.



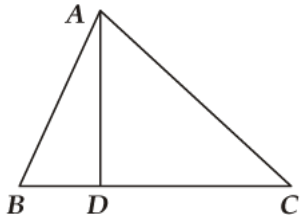
Q124. In figure, PA, QB and RC are each perpendicular to AC. Prove that $\frac{1}{x} + \frac{1}{z} = \frac{1}{y}$.



Q125. In trapezium $ABCD$, $AB \parallel DC$ and $DC = 2AB$. EF drawn parallel to AB cuts AD in F and BC in E such that $\frac{BE}{EC} = \frac{3}{4}$. Diagonal DB intersects EF at G. Prove that $7EF = 10\,AB$.

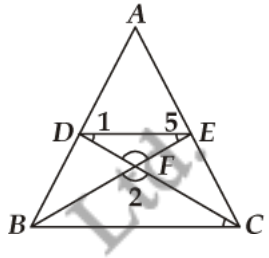
Q126. In ΔABC, if $AD \perp BC$ and $AD^2 = BD \times DC$, prove that $\angle BAC = 90°$.

Q127. In figure, $\angle BAC = 90°$ and segment $AD \perp BC$. Prove that $AD^2 = BD \times DC$.



Q128. ABC is a triangle in which $AB = AC$ and D is point of AC such that $BC^2 = AC \times CD$. Prove that $BD = BC$.

Q129. In figure, $DE \parallel BC$ and $AD : DB = 5 : 4$. Find $\frac{\text{Area}\,(\Delta DEF)}{\text{Area}\,(\Delta CFB)}$.



Q130. Two isosceles triangles have equal vertical angles and their areas are in the ratio 16 : 25. Find the ratio of their corresponding heights.

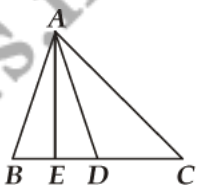
Q131. Prove that the areas of two similar triangles are in the ratio of the squares of the corresponding segments.

Q132. Prove that the areas of two similar triangles are in the ratio of the squares of the corresponding altitudes.

Q133. Prove that the ratio of the areas of two similar triangles are equal to the ratio of the squares of any two corresponding sides.

Q134. In figure, D is the mid-point of side BC and $AE \perp BC$. If $BC = a$, $AC = b$, $AB = c$, $ED = x$, $AD = p$ and $AE = h$, prove that:

(i) $b^2 = p^2 + ax + \frac{a^2}{4}$ (ii) $c^2 = p^2 - ax + \frac{a^2}{4}$ (iii) $b^2 + c^2 = 2p^2 + \frac{a^2}{2}$



Q135. If A be the area of a right triangle and b one of the sides containing the right angle, prove that the length of the altitude on the hypotenuse is $\frac{2Ab}{\sqrt{b^4 + 4A^2}}$.

Q136. In figure, ABC is a right triangle right angled at B points D and E trisect BC. Prove that $8AE^2 = 3AC^2 + 5AD^2$.

Q137. ABC is a right triangle right-angled at C. Let $BC = a$, $CA = b$, $AB = c$ and let p be the length of perpendicular from C on AB. prove that

(i) $cp = ab$ (ii) $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$

Q138. Prove the in a triangle, if the square of one side is equal to the sum of the squares of the other two sides, then the angle opposite to the side is a right angle.

Q139. Prove that in a right angled triangle, the square of the hypotenuse is equal to the sum of the squares of the other two sides.

Date: 29/9/2021

S1. $9/2$ cm.

S2. Proved.

S3. The length of $QR = 6$ cm.

S4. $\angle C = 50°$.

S5. The length of the third side is $\sqrt{2q+1}$ m .

S6. The distance from the starting point = 26 m.

S7. $BD = 7.5$ and $DC = 4.5$ cm.

S8. $AC = 4.9$ cm.

S9. $BC = 5.8$ cm.

S10. $AC = 4.5$ cm.

S11. 4.8 cm.

S12. 2.1 cm.

S13. $x = 4$.

S14. $x = 9$.

S15. $x = 1$.

S16. 2 cm

S17. 7.2 cm

S18. 6.43 cm.

S19. $x = 9$.

S20. Proved.

S21. $CA = 5.6$ cm and $AQ = 3.25$ cm.

S22. $AQ = 15$ cm.

S23. Proved.

S24. $x = \dfrac{ac}{b+c}$

S25. Proved.

S26. $DC = 10$ cm.

S27. 25 : 144.

S28. 4 : 9.

S29. 2.88 cm.

S30. 6 : 5.

S31. 22 cm.

S32. Area of $\Delta AOQ = 294$ cm^2.

S33. The length of $EF = 2.8$ cm^2.

S34. Area of $\Delta DEF = 96$ cm^2.

S35. Area (ΔABC) : Area (ΔPQR).

S36. Area $(\Delta ABC) = 36$: Area $(\Delta DEF) = 49$.

S37. The perimeter of $\Delta DEF = 15$ cm.

S38. 22 cm.

S39. 1 : 4.

S40. $BD = 2.5$ cm and $DC = 3.5$ cm.

S41. Proved.

S42. The length of other diagonal = 12 cm.

S43. Each side of the rhombus = 24 cm.

S44. $BC = 24$ cm.

S45. Width of the street = 21 m.

S46. Proved.

S47. Proved.

S48. Proved.

S49. $x = 11$ or 8.

S50. $BD = 3.6$ cm, $CE = 4.8$ cm.

S51. 8.25 cm.

S52. $x = 1$.

S53. The length of $QR = 6$ cm.

S54. 8.8 cm.

S55. 3.5 cm.

S56. Area of $\Delta COD = 21\ cm^2$.

S57. 1 : 9.

S58. $DE = 1.5$ cm.

S59. Proved.

S60. Proved.

S61. Proved.

S62. Proved.

S63. (i) Proved. (ii) Proved.

S64. Proved.

S65. $AD = 93.75$ cm.

S66. Proved.

S67. Proved.

S68. Proved.

S69. The corresponding side of the second triangle is 8 cm.

S70. Proved.

S71. Proved.

S72. $BC = 8.1$ cm.

S73. $CD = 16$ cm.

S74. Proved.

S75. Proved.

S76. Proved.

S77. $x = 6$.

S78. The length of $AC = 50.904$ cm.

S79. Proved.

S80. Proved.

S81. 9 : 16.

S82. Proved.

S83. Proved. $AE = \frac{15}{13}$ cm and $DE = \frac{36}{13}$ cm .

S84. Proved.

S85. Proved.

S86. Proved.

S87. (a) Proved. (b) Proved.

S88. Proved.

S89. Proved.

S90. Proved.

S91. Proved.

S92. Proved.

S93. Proved.

S94. The corresponding side of the other triangle is 5.4 cm.

S95. $\frac{BC}{DE} = \frac{5}{2}$

S96. Proved.

S97. Proved.

S98. Proved.

S99. Proved.

S100.(i) Proved. (ii) Proved.

S101. Proved.

S102. Proved.

S103. Proved.

S104. Proved.

S105. The ratio of areas of ΔABC and ΔBDE are 25 : 4.

S106. The ratio of areas of ΔABC and ΔBDE are 4 : 1.

S107. Proved.

S108. Proved.

S109. Proved.

S110. The radius of the circle = 2 cm.

S111. $\frac{1}{2}$.

S112. Proved.

S113. Proved.

S114. (i) Proved. (ii) Proved.

S115. Proved.

S116. Proved.

S117. Proved.

S118. Proved.

S119. Proved.

S120. Proved.

S121. Proved.

S122. Proved.

S123. The length of $CE = 2\sqrt{5}$ cm .

S124. Proved.

S125. Proved.

S126. Proved.

S127. Proved.

S128. Proved.

S129. The ratio of the areas is $\frac{\text{Area}(\Delta DEF)}{\text{Area}(\Delta CFB)} = \frac{25}{81}$.

S130. The ratio of their corresponding heights = 4 : 5.

S131. Proved.

S132. Proved.

S133. Proved.

S134. (i) Proved. (ii) Proved. (iii) Proved.

S135. Proved.

S136. Proved.

S137. (i) Proved. (ii) Proved.

S138. Proved.

S139. Proved.