



GRADE X • MATHEMATICS • QUESTION BANK

Chapter 6

TRIANGLES

34

1-Mark (MCQ + A/R)

32

2-Mark Questions

14

3-Mark Questions

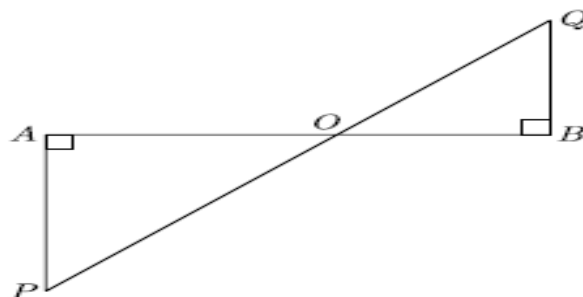
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5-Mark Questions

★ **Important PYQ** = Previous Year Board / Compartment Question (2023 & 2024). 42 of 100 questions in this bank are marked.

SECTION A • 1 Mark Questions

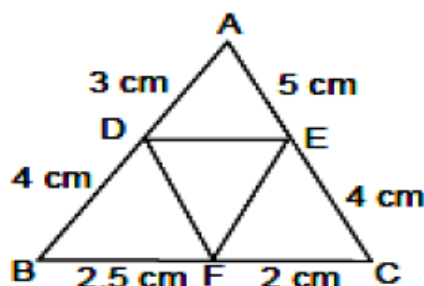
- $\triangle ABC$ is such that $AB = 3$ cm, $BC = 2$ cm, $CA = 2.5$ cm. If $\triangle ABC \sim \triangle DEF$ and $EF = 4$ cm then perimeter of $\triangle DEF$
 a) 7.5 cm b) 15 cm c) 22.5 cm d) 30 cm
- In the given figure, if $\angle A = 90^\circ$, $\angle B = 90^\circ$, $OB = 4.5$ cm, $OA = 6$ cm and $AP = 4$ cm then find QB.



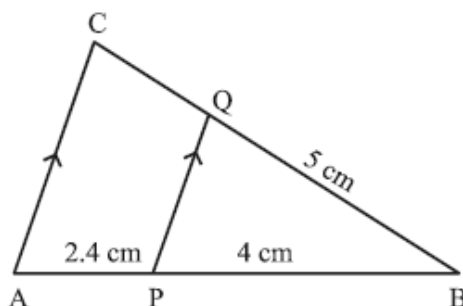
- a) 3 cm b) 6 cm c) 4.5 cm d) 3.5 cm
- If $\triangle PRQ \sim \triangle XYZ$ then
 a) $\frac{PR}{XZ} = \frac{RQ}{YZ}$ b) $\frac{PQ}{XY} = \frac{PR}{XZ}$
 c) $\frac{PQ}{XZ} = \frac{QR}{YZ}$ d) $\frac{QR}{XZ} = \frac{PR}{XY}$



4. In the given figure, $AD = 3$ cm, $AE = 5$ cm, $BD = 4$ cm, $CF = 2$ cm, $CE = 4$ cm, $BF = 2.5$ cm then



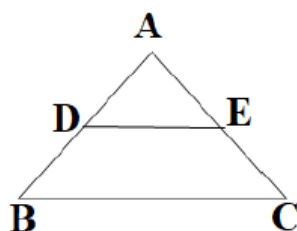
- a) $DE \parallel BC$ b) $DF \parallel AC$ c) $EF \parallel AB$ d) none of these
5. In the given figure, $PQ \parallel AC$. If $BP = 4$ cm, $AP = 2.4$ cm, $BQ = 5$ cm then find the length of BC.
★ Important PYQ [BOARD 2023]



- a) 8 cm b) 3 cm c) 0.3 cm d) $\frac{25}{3}$ cm
6. If in triangles ABC and DEF, $\frac{AB}{DE} = \frac{BC}{FD}$ then they will be similar when ★ Important PYQ [BOARD 2023]
a) $\angle B = \angle E$ b) $\angle A = \angle D$ c) $\angle B = \angle D$ d) $\angle A = \angle F$
7. If $\triangle ABC \sim \triangle PQR$, $PQ = 6$ cm, $AB = 8$ cm and perimeter of $\triangle ABC$ is 36 cm then perimeter of $\triangle PQR$ is ★ Important PYQ [BOARD 2023]
a) 20.25 cm b) 27 cm c) 48 cm d) 64 cm
8. If $\triangle ABC \sim \triangle PQR$ with $\angle A = 32^\circ$ and $\angle R = 65^\circ$ then $\angle B$ is ★ Important PYQ [BOARD 2023]
a) 32° b) 65° c) 83° d) 97°
9. It is given that, $\triangle ABC \sim \triangle EDF$ such that $AB = 5$ cm, $AC = 7$ cm, $DF = 15$ cm and $DE = 12$ cm then the sum of the remaining sides of the triangles is
a) 23.05 cm b) 16.8 cm c) 6.25 cm d) 24 cm



10. In the given figure, $DE \parallel BC$, $AE = a$ units, $EC = b$ units, $DE = x$ units and $BC = y$ units. Which of the following is true?

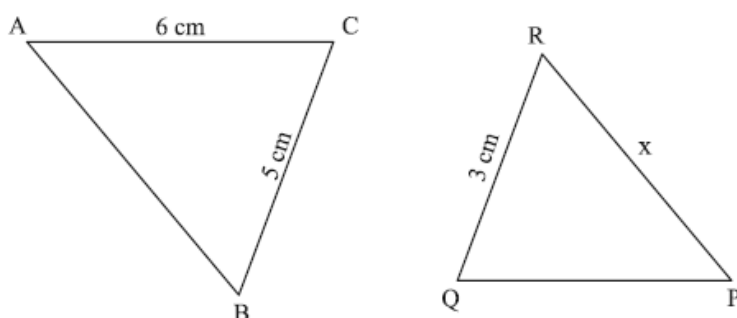


- a) $x = \frac{a+b}{ay}$ b) $y = \frac{ax}{a+b}$
 c) $x = \frac{ay}{a+b}$ d) $\frac{x}{y} = \frac{a}{b}$

11. The perimeters of two similar triangles ABC & PQR are 56 cm and 48 cm respectively. $\frac{PQ}{AB}$ is ★
Important PYQ [BOARD 2024]

- a) $\frac{7}{8}$ b) $\frac{6}{7}$ c) $\frac{7}{6}$ d) $\frac{8}{7}$

12. In the given figure, $\triangle ABC \sim \triangle QPR$. If $AC = 6$ cm, $BC = 5$ cm, $QR = 3$ cm and $PR = x$ then the value of x is ★ **Important PYQ [BOARD 2023]**

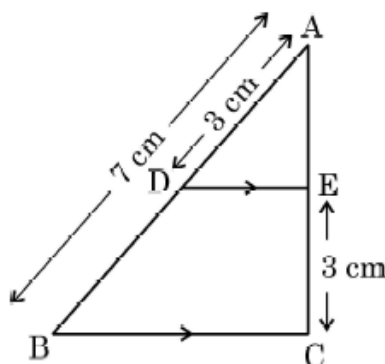


- a) 3.6 cm b) 2.5 cm c) 10 cm d) 3.2 cm

13. If the diagonals of a quadrilateral divide each other proportionally then it is a ★ **Important PYQ [BOARD 2024]**

- a) Parallelogram b) rectangle c) square d) trapezium

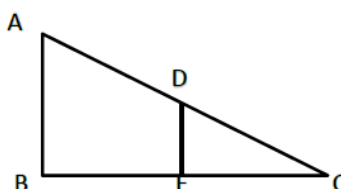
14. In the given figure, $DE \parallel BC$. If $AD = 3$ cm, $AB = 7$ cm, $EC = 3$ cm then length of AE is ★
Important PYQ [BOARD 2023]



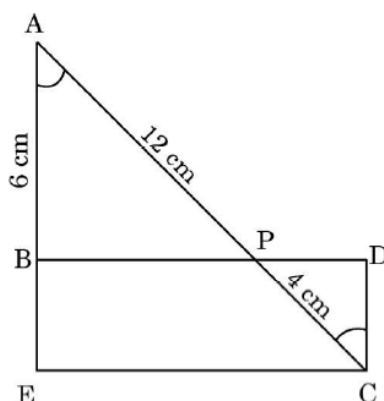
- a) 2 cm b) 2.25 cm c) 3.5 cm d) 4 cm



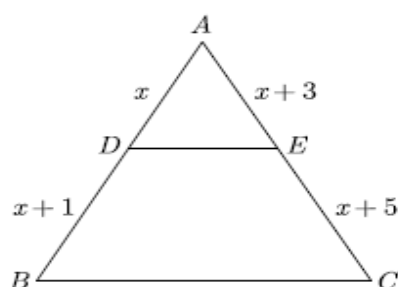
15. ABCD is a trapezium with $AD \parallel BC$ and $AD = 4$ cm. If the diagonals AC and BD intersect each other at O such that $\frac{AO}{CO} = \frac{DO}{BO} = \frac{1}{2}$ then BC is ★ Important PYQ [COMPARTMENT 2023]
- a) 6 cm b) 7 cm c) 8 cm d) 9 cm
16. If $\triangle ABC \sim \triangle DEF$ such that $2AB = DE$ and $BC = 8$ cm then find EF.
- a) 16 cm b) 14 cm c) 12 cm d) 15 cm
17. In $\triangle ABC$, $DE \parallel AB$. If $AB = a$, $DE = x$, $BE = b$, $EC = c$ then express x in terms of a , b , c



- a) $\frac{ac}{b}$ b) $\frac{ac}{b+c}$ c) $\frac{ab}{c}$ d) $\frac{ab}{b+c}$
18. In the given figure, $\angle A = \angle C$, $AB = 6$ cm, $AP = 12$ cm, $CP = 4$ cm. Then length of CD is ★ Important PYQ [BOARD 2023]



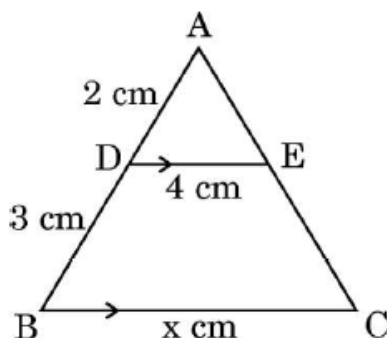
- a) 2 cm b) 6 cm c) 8 cm d) 18 cm
19. In $\triangle ABC$, $DE \parallel BC$, find the value of x .



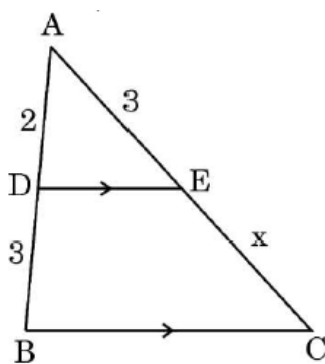
- a) 3 b) 2 c) 1 d) 4



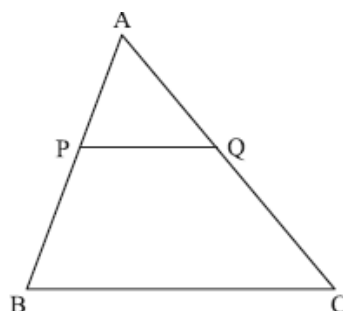
20. In the given figure, $DE \parallel BC$. The value of x is ★ Important PYQ [BOARD 2023]



- a) 6 cm b) 12.5 cm c) 8 cm d) 10 cm
21. In the given figure, $DE \parallel BC$. The value of x is ★ Important PYQ [BOARD 2023]



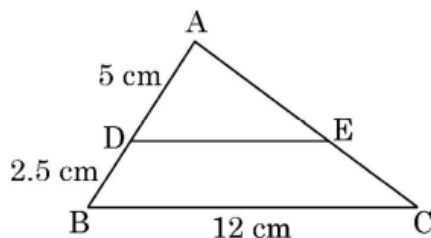
- a) 2 cm b) 3 cm c) 5 cm d) $\frac{9}{2}$ cm
22. The perimeters of two similar triangles are 25 cm and 15 cm respectively. If one side of the first triangle is 9 cm, then the corresponding side of second triangle is
- a) 5.4 cm b) 5.2 cm c) 4.9 cm d) 5.1 cm
23. In figure, $PQ \parallel BC$. Find the length of side AC , given that $PB = 6$ cm, $AP = 4$ cm and $AQ = 8$ cm. ★ Important PYQ [BOARD 2023]



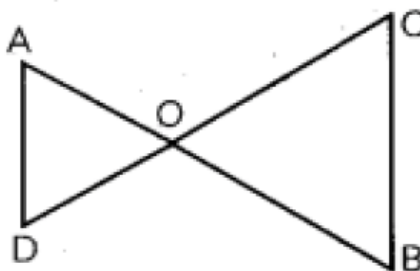
- a) 12 cm b) 20 cm c) 6 cm d) 14 cm
24. If $\triangle ABC \sim \triangle EDF$ and $\triangle ABC$ is not similar to $\triangle DEF$ then which of the following is not true?
- a) $BC \cdot EF = AC \cdot FD$ b) $BC \cdot DE = AB \cdot EF$
 c) $AB \cdot EF = AC \cdot DE$ d) $BC \cdot DE = AB \cdot FD$
25. In $\triangle ABC$ and $\triangle DEF$, $\angle B = \angle E$, $\angle F = \angle C$ and $AB = 3DE$. Then the two triangles are
- a) Congruent but not similar b) Neither congruent nor similar
 c) similar but not congruent d) congruent as well as similar



26. In the given figure $\triangle ABC$ is shown. $DE \parallel BC$, $AD = 5$ cm, $DB = 2.5$ cm, $BC = 12$ cm then DE is
★ Important PYQ [BOARD 2024]



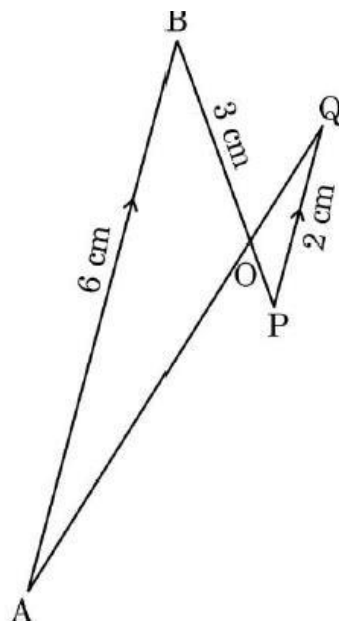
- a) 10 cm b) 6 cm c) 8 cm d) 7.5 cm
27. In the $\triangle ABC$, D and E are points on side AB and AC respectively such that $DE \parallel BC$. If $AE = 2$ cm, $AD = 3$ cm, $BD = 4.5$ cm then CE equals
a) 1 cm b) 2 cm c) 3 cm d) 4cm
28. $\triangle ABC \sim \triangle PQR$. If AM and PN are altitudes of $\triangle ABC$ and $\triangle PQR$ respectively and $AB^2 : PQ^2 = 4 : 9$ then $AM : PN$ is
a) 16: 81 b) 4: 9 c) 3: 2 d) 2: 3
29. In the figure, if $\frac{OA}{OD} = \frac{OC}{OB}$ then which pair of angles are equal?



- a) $\angle A = \angle C$, $\angle B = \angle D$ b) $\angle C = \angle B$, $\angle A = \angle D$
c) $\angle A = \angle B$, $\angle C = \angle D$ d) None of these
30. The area of right angled triangle is 40 cm^2 and its perimeter is 40 cm. The length of its hypotenuse is
a) 16 cm b) 18 cm c) 17 cm d) 19 cm



31. In the given figure, $AB \parallel PQ$. If $AB = 6$ cm, $PQ = 2$ cm, $OB = 3$ cm then length of OP is ★
Important PYQ [BOARD 2023]



- a) 9 cm b) 3 cm c) 4 cm d) 1 cm

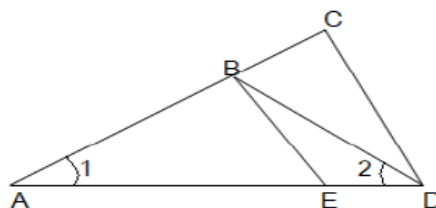
Options for Assertion and Reasoning Questions:

- 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
32. **Assertion (A):** In the $\triangle ABC$, $AB = 24$ cm, $BC = 10$ cm and $AC = 26$ cm then $\triangle ABC$ is a right angle triangle.
Reason (R): If in two triangles, their corresponding angles are equal then the triangles are similar.
33. **Assertion (A):** If the co-ordinates of the mid-points of the sides AB and AC of $\triangle ABC$ are $D(3, 5)$ and $E(-3, -3)$ respectively then $BC = 20$ units
Reason (R): The line joining the mid-points of two sides of a triangle is parallel to the third side and equal to half of it.
34. **Assertion (A):** $ABCD$ is a trapezium with $DC \parallel AB$. E and F are points on AD and BC respectively such that $EF \parallel AB$. Then $\frac{AE}{ED} = \frac{BF}{FC}$.
Reason (R): Any line parallel to parallel sides of a trapezium divides the non-parallel sides proportionally. ★ Important PYQ [BOARD 2024]



SECTION B • 2 Marks Questions

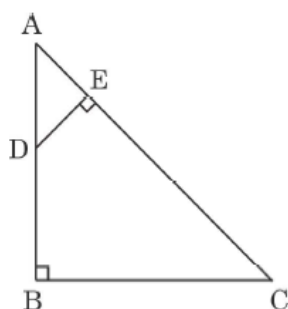
1. In the given figure, $\frac{AD}{AE} = \frac{AC}{BD}$ and $\angle 1 = \angle 2$. Show that $\triangle BAE \sim \triangle CAD$.



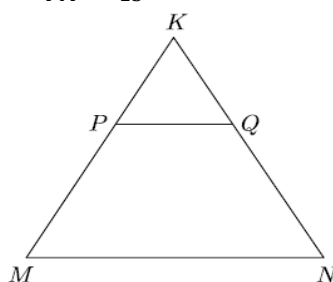
2. In the given figure, if ABCD is a trapezium in which $AB \parallel CD \parallel EF$ then prove that $\frac{AE}{ED} = \frac{BF}{FC}$.



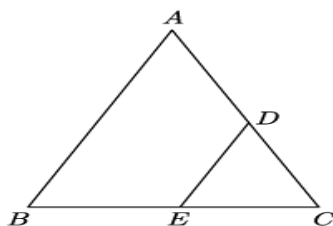
3. In the given figure, $AB \perp BC$, $DE \perp AC$. Prove that $\triangle ABC \sim \triangle AED$. ★ Important PYQ [COMPARTMENT 2023]



4. In the figure, PQ is parallel to MN, if $\frac{KP}{PM} = \frac{4}{13}$ and $KN = 20.4$ cm then find KQ.

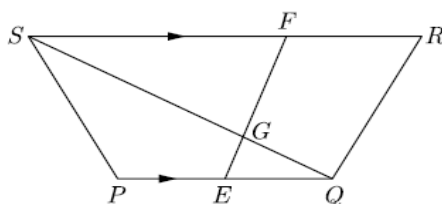


5. In the given figure, $\triangle ABC$, $DE \parallel AB$. If $AD = 2x$, $DC = x + 3$, $BE = 2x - 1$ and $CE = x$ then find the value of x .

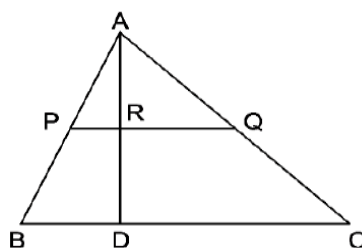




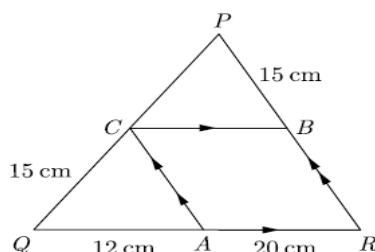
6. In the given figure, PQRS is a trapezium in which $PQ \parallel RS$. On PQ and RS there are points E and F respectively such that EF intersects SQ at G. Prove that $EQ \times GS = GQ \times FS$.



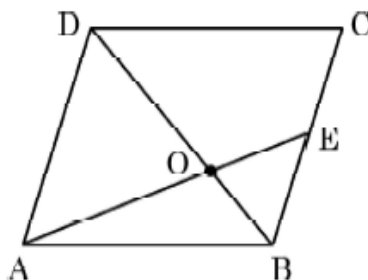
7. In the given figure, $AP = 3$ cm, $AR = 4.5$ cm, $AQ = 6$ cm, $AB = 5$ cm, $AC = 10$ cm. Find the length of AD



8. Diagonals AC & BD of a trapezium ABCD intersect at O, where $AB \parallel DC$. If $\frac{DO}{BO} = \frac{1}{2}$ then show that $AB = 2CD$. ★ Important PYQ [BOARD 2024]
9. In a rectangle ABCD, E is a point on AB such that $AE = \frac{2}{3}AB$. If $AB = 6$ km and $AD = 3$ km, then find DE.
10. In the given figure, $CB \parallel QR$ and $CA \parallel PR$. If $AQ = 12$ cm, $AR = 20$ cm, $PB = CQ = 15$ cm, calculate PC and BR.

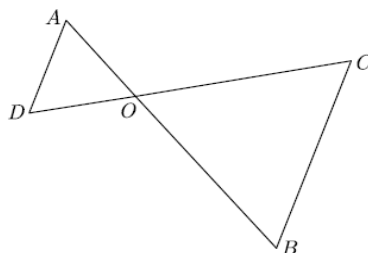


11. ABCD is a parallelogram. AE divides the line segment BD in the ratio 1:2. If $BE = 1.5$ cm then find the length of BC. ★ Important PYQ [BOARD 2023]

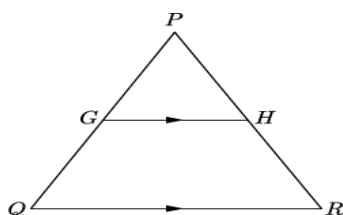




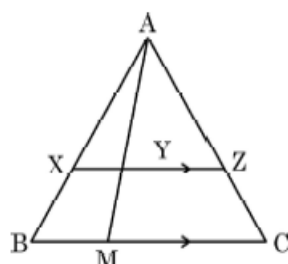
12. In the given figure, $OA \times OB = OC \times OD$ show that $\angle A = \angle C$ and $\angle B = \angle D$.



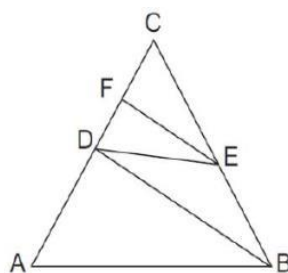
13. In the given figure, G is the mid-point of the side PQ of $\triangle PQR$ and $GH \parallel QR$. Prove that H is the mid-point of the side PR.



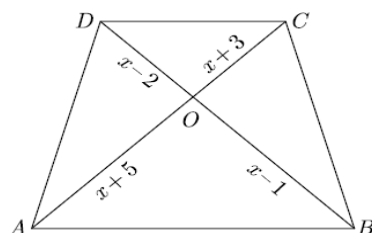
14. In the given figure, $Z \parallel BC$. $AZ = 3$ cm, $ZC = 2$ cm, $BM = 3$ cm, $MC = 5$ cm. Find the length of XY. ★ Important PYQ [BOARD 2023]



15. In the given figure, $AB \parallel DE$ and $BD \parallel EF$ then prove that $DC^2 = CF \times AC$.

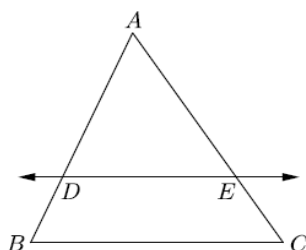


16. In the given figure, if $AB \parallel DC$, find the value of x.



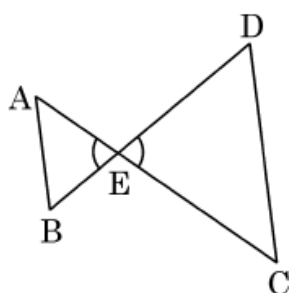


17. In the given figure, in $\triangle ABC$, $DE \parallel BC$ such that $AD = 2.4$ cm, $AB = 3.2$ cm and $AC = 8$ cm, then what is the length of AE ?

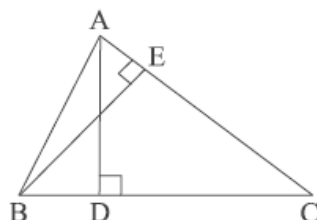


18. If $\triangle ABC \sim \triangle DEF$ such that $2AB = DE$ and $BC = 8$ cm then find EF .

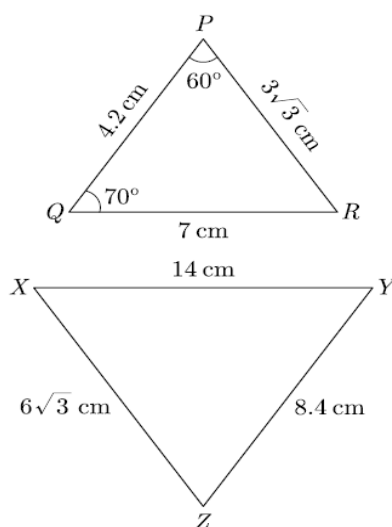
19. In the given figure, $\frac{EA}{EC} = \frac{EB}{ED}$ prove that $\triangle EAB \sim \triangle ECD$. ★ Important PYQ [BOARD 2024]



20. In $\triangle ABC$, altitudes AD and BE are drawn. If $AD = 7$ cm, $BE = 9$ cm, $EC = 12$ cm then find the length of CD . ★ Important PYQ [BOARD 2024]

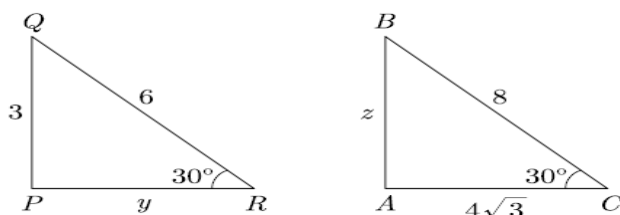


21. In the given figure, find the measure of $\angle X$.

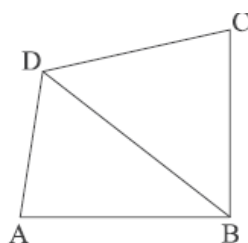




22. In the given figure, $\triangle ABC \sim \triangle PQR$ find the value $y + z$.

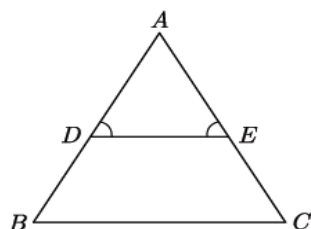


23. X is a point on the side BC of $\triangle ABC$. XM and XN are drawn parallel to AB and AC respectively meeting AB in N and AC in M. MN produced meets CB produced at T. Prove that $TX^2 = TB \times TC$.
24. ABCD is a trapezium with $AB \parallel CD$ and its diagonals AC and BD intersect each other at O. Show that $\frac{AO}{BO} = \frac{CO}{DO}$. ★ Important PYQ [BOARD 2023]
25. In the given figure, ABCD is a quadrilateral. Diagonal BD bisects $\angle B$ & $\angle D$ both. Prove that ★ Important PYQ [BOARD 2024]

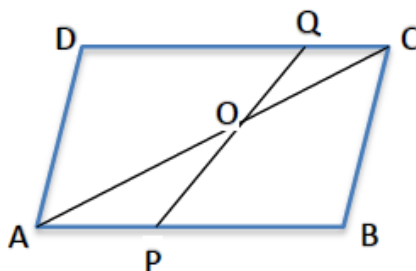


- (i) $\triangle ABD \sim \triangle CBD$
 (ii) $AB = BC$.

26. In figure, $\angle D = \angle E$ and $\frac{AD}{DB} = \frac{AE}{EC}$ prove that $\triangle BAC$ is an isosceles triangle.



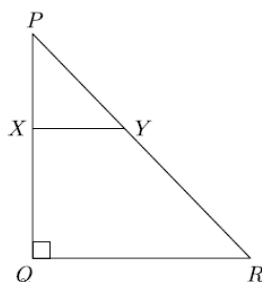
27. ABCD is a parallelogram. Point P divides AB in the ratio 2: 3 and point Q divides DC in the ratio 4: 1. Prove that OC is half of OA.



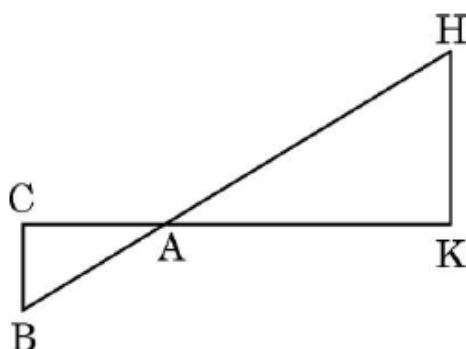
28. In $\triangle ABC$, if X and Y are points on AB and AC respectively such that $\frac{AX}{XB} = \frac{3}{4}$, $AY = 5$ and $YC = 9$ then state whether XY and BC are parallel or not.



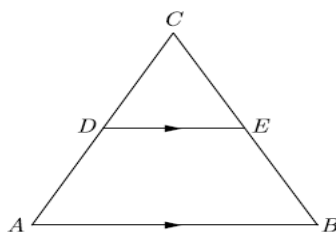
29. In the given figure, PQR is a triangle right angled at Q and $XY \parallel QR$. If $PQ = 6$ cm, $PY = 4$ cm and $PX:XQ = 1:2$. Calculate the length of PR and QR.



30. In the given figure, $\triangle AHK \sim \triangle ABC$. If $AK = 8$ cm, $BC = 3.2$ cm, $HK = 6.4$ cm then find the length of AC. ★ Important PYQ [BOARD 2024]



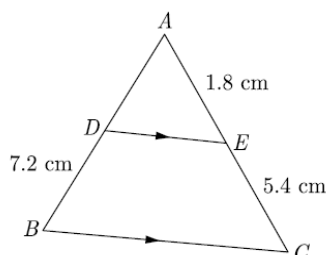
31. In the given figure, $\angle A = \angle B$ and $AD = BE$. Show that $DE \parallel AB$.



32. ABC is a right triangle right angled at C. Let $BC = a$, $CA = b$, $AB = c$ and p be the length of perpendicular from C to AB. Prove that $cp = ab$.

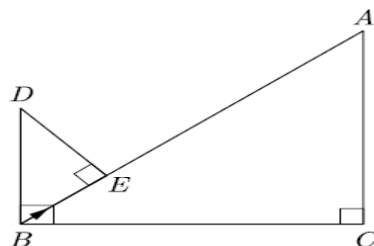
SECTION C • 3 Marks Questions

- Two right triangles ABC and DBC are drawn on the same hypotenuse BC and on the same side of BC. If AC and BD intersect at P, prove that $AP \times PC = BP \times DP$.
- In the given figure, $DE \parallel BC$. Find the length of side AD, given that $AE = 1.8$ cm, $BD = 7.2$ cm and $CE = 5.4$ cm

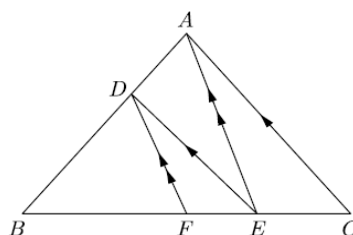




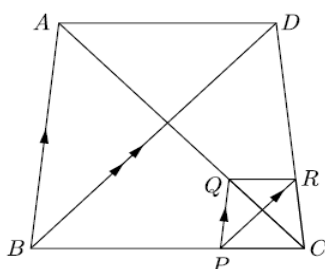
3. In the given figure, $DB \perp BC$, $DE \perp AB$ and $AC \perp BC$. Prove that $\frac{BE}{DE} = \frac{AC}{BC}$



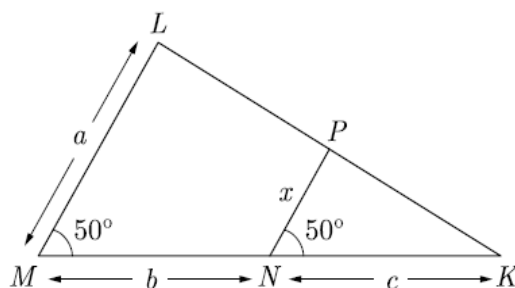
4. In the given figure, $DE \parallel AC$ and $DF \parallel AE$. Prove that $\frac{BE}{FE} = \frac{BE}{EC}$



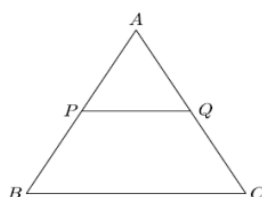
5. In the given figure, two triangles ABC and DBC lie on the same side of BC such that $PQ \parallel BA$ and $PR \parallel BD$. Prove that $QR \parallel AD$.



6. In the given figure, find the value of x in terms of a , b and c .



7. In the given figure, P and Q are the points on the sides AB and AC respectively of $\triangle ABC$ such that $AP = 3.5$ cm, $PB = 7$ cm, $AQ = 3$ cm and $QC = 6$ cm. If $PQ = 4.5$ cm find BC.

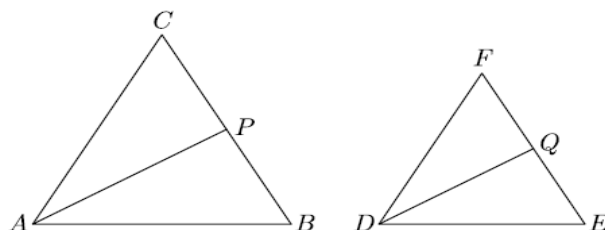


8. Two right triangles ABC and DBC are drawn on the same hypotenuse BC and on the same side of BC. If AC and BD intersect at P, prove that $AP \times PC = BP \times DP$.



9. A 6m high tree cast a 4 m long shadow. At the same time, a flag pole cast a shadow 50 m long. How long is the flag pole?

10. In the given figure, $\triangle ABC \sim \triangle DEF$. AP bisects $\angle CAB$ and DQ bisects $\angle FDE$.

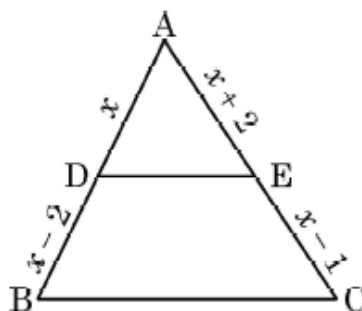


Prove that:

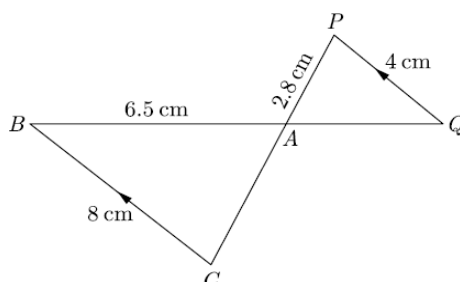
(i) $\frac{AP}{DQ} = \frac{AB}{DE}$

(ii) $\triangle CAP \sim \triangle FDQ$.

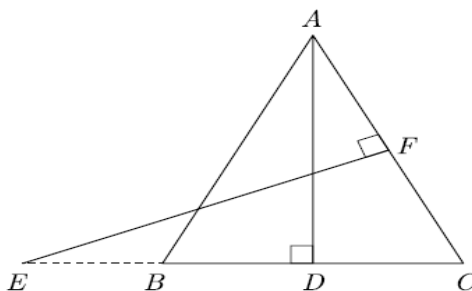
11. In $\triangle ABC$, $DE \parallel BC$, find the value of x. ★ Important PYQ [BOARD 2023]



12. In the given figure, $BC \parallel PQ$ and $BC = 8$ cm, $PQ = 4$ cm, $BA = 6.5$ cm, $AP = 2.8$ cm. Find CA and AQ.

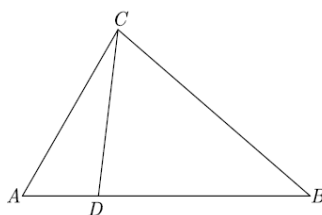


13. In the given figure, $AB = AC$. E is a point on CB produced. If AD is perpendicular to BC and EF is perpendicular to AC prove that $\triangle ABD \sim \triangle CEF$. ★ Important PYQ [BOARD 2023 & COMPARTMENT 2023]





14. In the given figure, if $\angle ACB = \angle CDA$, $AC = 6$ cm and $AD = 3$ cm then find the length of AB.

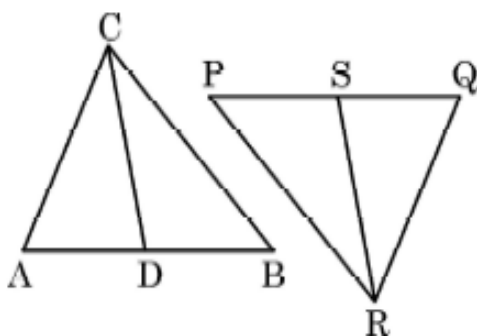


SECTION D • 5 Marks Questions

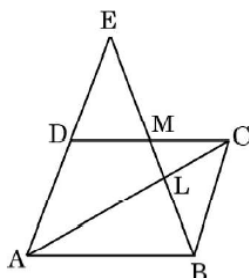
1. Prove that if a line is drawn parallel to one side of a triangle intersecting the other two sides in distinct points, then the other two sides are divided in the same ratio. ★ Important PYQ [BOARD 2023, COMPARTMENT 2023 & BOARD 2024]

Using the above theorem prove that a line through the point of intersection of the diagonals and parallel to the base of the trapezium divides the non parallel sides in the same ratio.

2. In the given figure, CD and RS are respectively the medians of $\triangle ABC$ & $\triangle PQR$. If $\triangle ABC \sim \triangle PQR$ then prove that



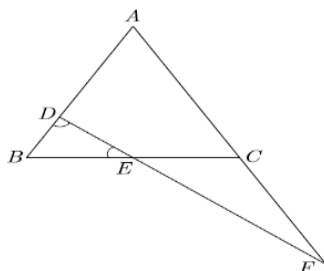
- (i) $\triangle ADC \sim \triangle PSR$.
 (ii) $AD \times PR = AC \times PS$. ★ Important PYQ [BOARD 2023]
3. Through the mid-point M of the side CD of a parallelogram ABCD, the line BM is drawn intersecting AC in L and AD (produced) in E. Prove that $EL = 2BL$. ★ Important PYQ [BOARD 2023 & BOARD 2024]



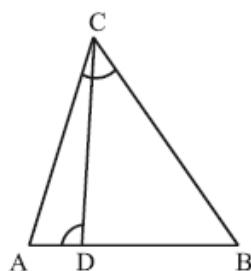
4. E is a point on the side AD produced of a parallelogram ABCD and BE intersects CD at F. Show that $\triangle ABE \sim \triangle CFB$. ★ Important PYQ [BOARD 2024]



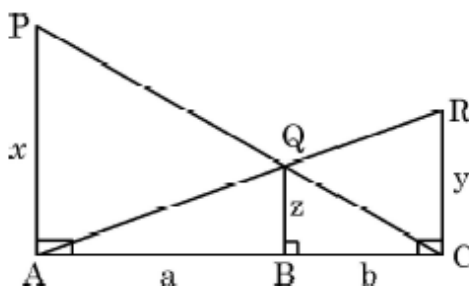
5. In the given figure, $\angle BED = \angle BDE$ and E is the mid-point of BC. Prove that $\frac{AF}{CF} = \frac{AD}{BE}$. ★ Important PYQ [BOARD 2023]



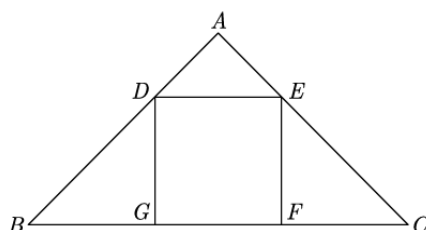
6. In the given figure, $\angle ADC = \angle BCA$ prove that $\triangle ACB \sim \triangle ADC$. Hence find BD if $AC = 8$ cm & $AD = 3$ cm. ★ Important PYQ [BOARD 2023]



7. In $\triangle ABC$, AD is the median to BC and in $\triangle PQR$, PM is the median to QR. If $\frac{AB}{PQ} = \frac{BC}{QR} = \frac{AD}{PM}$. Prove that $\triangle ABC \sim \triangle PQR$.
8. In a $\triangle PQR$, N is a point on PR such that $QN \perp PR$. If $PN \times NR = QN^2$ then prove that $\angle PQR = 90^\circ$. ★ Important PYQ [BOARD 2023 & BOARD 2024]
9. If AD and PM are medians of triangles ABC and PQR respectively, where $\triangle ABC \sim \triangle PQR$ then prove that $\frac{AB}{PQ} = \frac{AD}{PM}$. ★ Important PYQ [BOARD 2023]
10. PA, QB and RC are each perpendicular to AC. If $AP = x$, $QB = z$, $RC = y$, $AB = a$ and $BC = b$ then prove that $\frac{1}{x} + \frac{1}{y} = \frac{1}{z}$. ★ Important PYQ [BOARD 2023 & BOARD 2024]

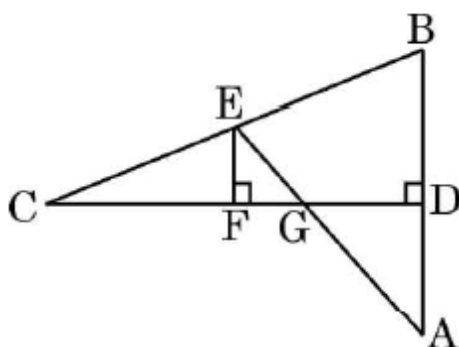


11. In the given figure, DEFG is a square and $\angle BAC = 90^\circ$. Show that $FG^2 = BG \times FC$.

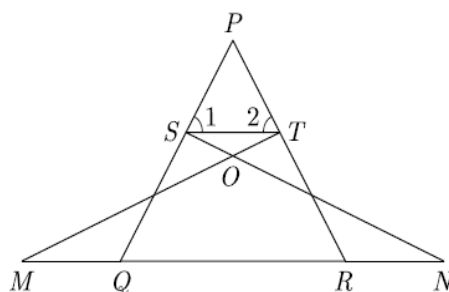




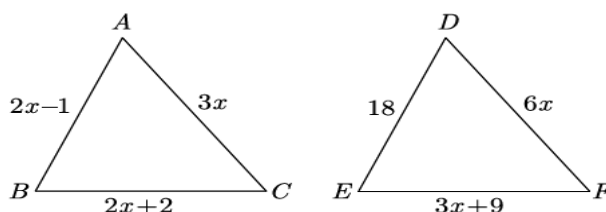
12. In the given figure, CD is the perpendicular bisector of AB. EF is perpendicular to CD. AE intersects CD at G. Prove that $\frac{CF}{CD} = \frac{FG}{DG}$. ★ Important PYQ [BOARD 2023]



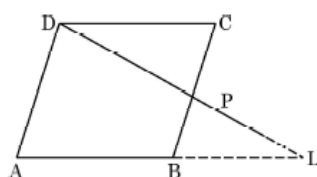
13. In the given figure, $\angle 1 = \angle 2$ and $\triangle NSQ \sim \triangle MTR$ then prove that $\triangle PTS \sim \triangle PRO$. ★ Important PYQ [BOARD 2024]



14. In the given figure, if $\triangle ABC \sim \triangle DEF$ and their sides of lengths (in cm) are marked along them, then find the lengths of sides of each triangle.



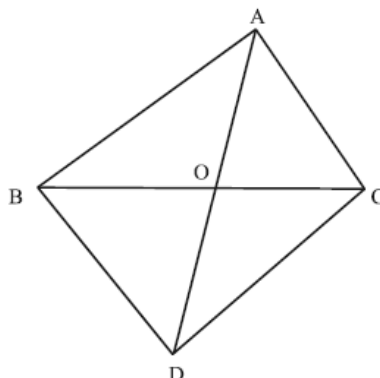
15. ABCD is a parallelogram, P is a point on side BC and DP when produced meets AB produced at L. Prove that
- $\frac{DP}{PL} = \frac{DC}{BL}$
 - $\frac{DL}{DP} = \frac{AL}{DC}$
 - If $LP:PD = 2:3$ then find $BP:BC$. ★ Important PYQ [BOARD 2023]



16. D is a point on the side BC of a triangle ABC such that $\angle ADC = \angle BAC$ then prove that $CA^2 = CB \cdot CD$. ★ Important PYQ [BOARD 2023]



- 17.** In the given figure, $\triangle ABC$ and $\triangle DBC$ are on the same base BC. If AD intersects BC at O prove that $\frac{ar(\triangle ABC)}{ar(\triangle DBC)} = \frac{AO}{DO}$. ★ Important PYQ [BOARD 2023]



- 18.** Find the length of the second diagonal of a rhombus, whose side is 5 cm and one of the diagonal is 6 cm.
- 19.** Sides AB and AC and median AM of a triangle ABC are respectively proportional to sides DE and DF and median DN of another triangle DEF. Show that $\triangle ABC \sim \triangle DEF$. ★ Important PYQ [BOARD 2023 & BOARD 2024]
- 20.** In $\triangle ABC$, AD is a median and O is any point on AD. BO and CO on producing meet AC and AB at E and F respectively. Now AD is produced to X such that $OD = DX$ as shown in figure. Prove that
- $EF \parallel BC$
 - $AO:AX = AF:AB$

