doubtnut
India's Number 1 Education App

MATHS

BOOKS - FULL MARKS MATHS (TAMIL ENGLISH)

GEOMETRY

Progress Check

1. All circles are ..... (congruent/similar).

Watch Video Solution

2. All squares are ..... (similar/congruent).

Watch Video Solution

3. Two triangles are similar, if their corresponding angles are ..... and their corresponding sides are .....

Watch Video Solution

4. All congruent triangles are similar - True/False.

Watch Video Solution

5. Give two examples of pair of non - similar figures ?

Watch Video Solution

6. A straight line drawn ____ to a side of a triangle divides the order two sides proportionality.

Watch Video Solution

7. Basic Proportionality Theorem is also known as .....

Watch Video Solution

8. Let ΔABC be equilateral. If D is a point on BC and AD is the internal bisector of $\angle A$. Using Angle Bisector Theorem, $\frac{BD}{DC}$ is .....

Watch Video Solution

9. Find the angle A in $\triangle ABC$, if $\angle B = 60^\circ$ and $\angle c = 70^\circ$

Watch Video Solution

10. If the median AD to the side BC of a ΔABC is also an angle bisector of $\angle A$ then $\frac{AB}{AC}$ is .....

Watch Video Solution

11. ___ is the longest side of the right angled triangle.

Watch Video Solution

12. The first theorem in mathematics is ..... .

Watch Video Solution

13. If the square of the longest side of a triangle is equal to sums of squares of other two sides, then the triangles is .....

Watch Video Solution

14. State True or False. Justify them.

Pythagoras Theorem is applicable to all triangles.

Watch Video Solution

15. A straight line that touches a circle at a common point is called a ___.

Watch Video Solution

16. A chord is a subsection of .....

Watch Video Solution

17. The lengths of the two tangents drawn from ..... point to a circle are equal.

Watch Video Solution

18. No tangent can be drawn from ..... of the circle.

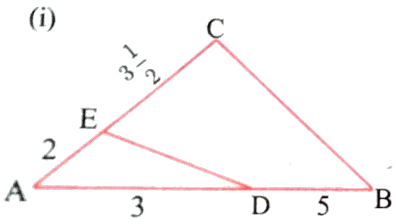
Watch Video Solution

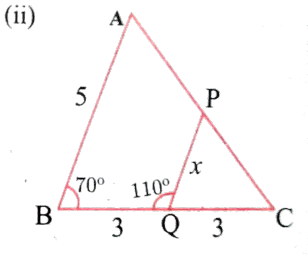
19. ..... is a cevian that divides the angle, into two equal halves.

Watch Video Solution

Exercise 4 1

1. Check whether the which triangles are similar and find the value of x.





Watch Video Solution

2. A girl looks the reflection of the top of the lamp post on the mirror which is 6.6 m away from the foot of the lamppost. The girl whose height is 1.25 m is standing 2.5 m away from the mirror. Assuming the mirror is placed on the ground facing the sky and the girl, mirror

and the lamppost are in a same line, find the height of the lamp post ?

Watch Video Solution

3. A vertical stick of length 6 m casts a shadow 400 cm long on the ground and at the same time a tower casts a shadow 28 m long. Using similarity, find the height of the tower.

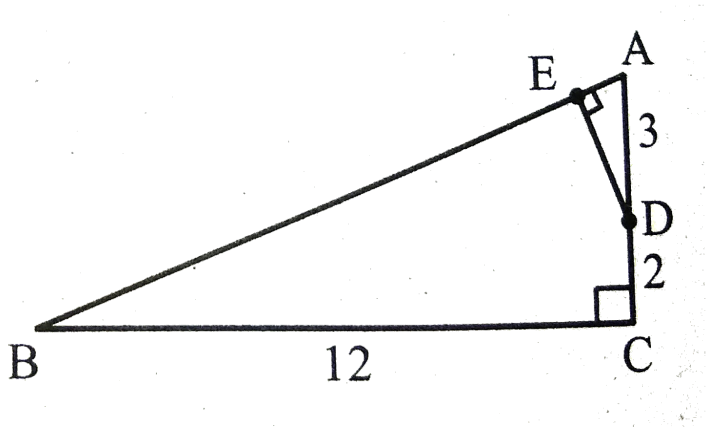
Watch Video Solution

4. Two triangles QPR and QSR, right angled at P and S respectively are drawn on the same base QR and on the same side of QR. If PR and SQ intersect at T, prove that $PT \times TR = ST \times TQ$.

Watch Video Solution

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

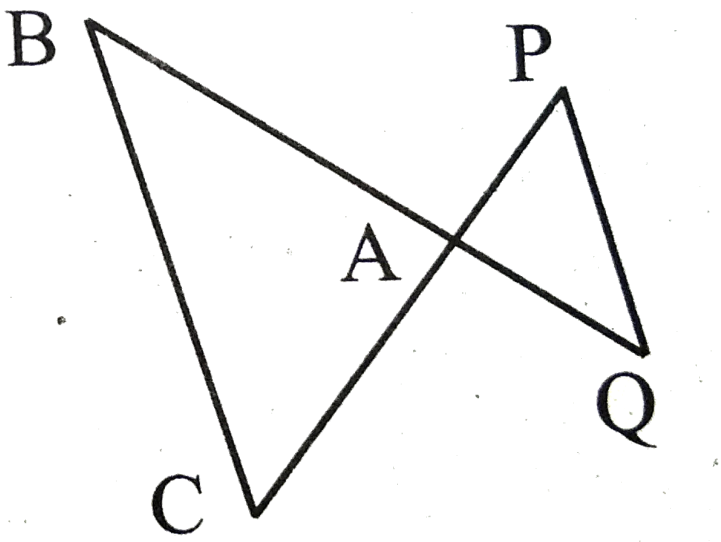
AE and DE ?



Watch Video Solution

6. In the adjacent figure, $\Delta ACB \sim \Delta APQ$. If BC=8 cm , PQ=4 cm, BA=6.5 cm and AP=2.8 cm,

find CA and AQ.

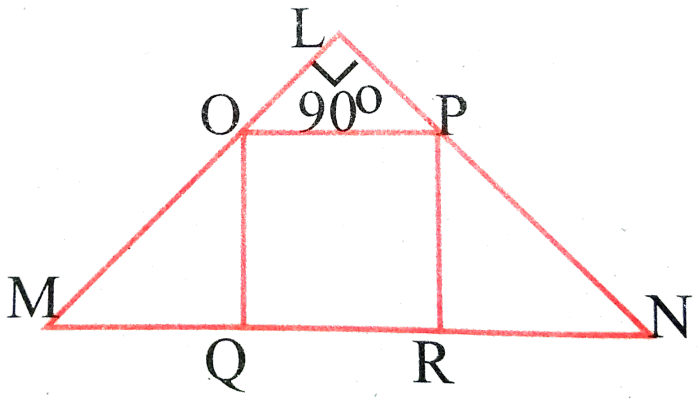


Watch Video Solution

7. In figure OPRQ is a square and $\angle MLN = 90^\circ$. Prove that

$(i)\Delta LOP \sim \Delta QMO (ii)\Delta LOP \sim \Delta RPN$

$(iii)\Delta QMO \sim \Delta RPN (iv) QR^2 = MQ \times RN.$

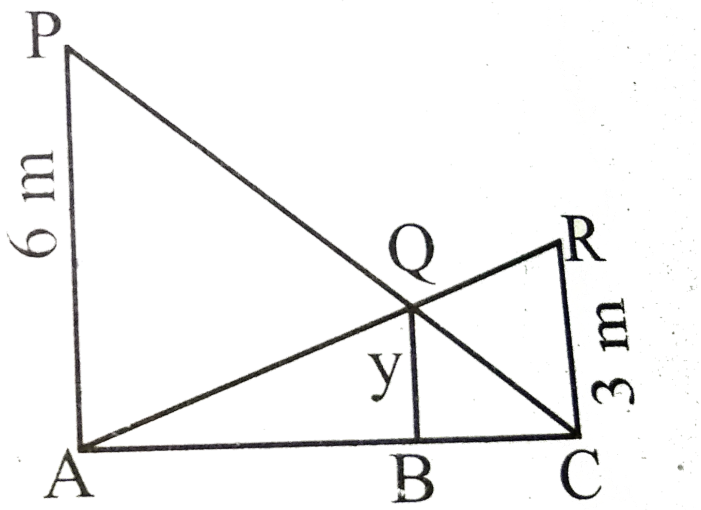


Watch Video Solution

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

Watch Video Solution

9. Two vertical poles of heights 6 m and 3 m are erected above a horizontal ground AC. Find the value of y.



Watch Video Solution

10. Construct a triangle similar to a given triangle PQR with its sides equal to $\frac{2}{3}$ of the corresponding sides of the triangle PQR (scale factor $\frac{2}{3}$).

Watch Video Solution

11. Construct a triangle similar to a given triangle LMN with its sides equal to $\frac{4}{5}$ of the corresponding sides of the triangle LMN (scale factor $\frac{4}{5}$).

Watch Video Solution

12. Construct a triangle similar to a given triangle ABC with its sides equal to $\frac{6}{5}$ of the corresponding sides of the triangle ABC (scale factor $\frac{6}{4}$).

Watch Video Solution

13. Construct a triangle similar to a given triangle PQR with its sides equal to $\frac{7}{3}$ of the

corresponding sides of the triangle PQR (scale factor $\frac{7}{3}$).

Watch Video Solution

Exercise 4 2

1. In ΔABC, D and E are points on the sides AB and AC respectively such that $DE \mid\mid BC$

(i) If $\frac{AD}{DB} = \frac{3}{4}$ and AC=15 cm find AE.

(ii) If AD=8x-7, DB=5x-3, AE= 4x-3 and EC=3x - 1, find the value of x.

Watch Video Solution

2. ABCD is a trapezium in which $AB \| DC$ and P,Q are points on AD and BC respectively, such that $PQ \| DC$ if PD=18 cm , BQ= 35 cm and QC= 15 cm, find AD.

Watch Video Solution

3. In ΔABC, D and E are points on the sides AB and AC respectively. For each of the following cases show that DE||BC

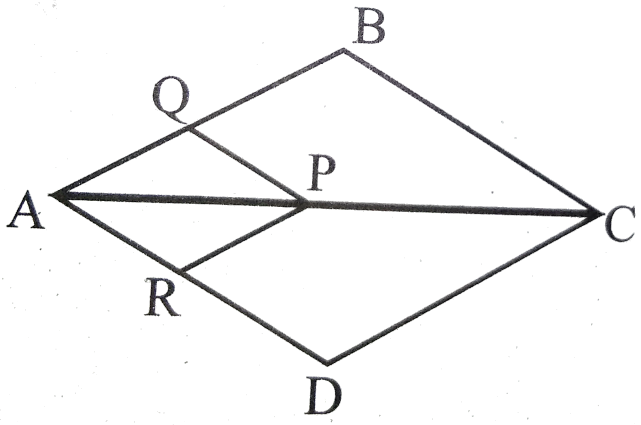
(i) AB=12 cm , AD=8 cm, AE=12 cm and AC=18 cm.

(ii) AB=5.6 cm, AD=1.4 cm, AC=7.2 cm and AE=1.8 cm.

Watch Video Solution

4. In fig. if PQ||BC and PR||CD prove that

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



Watch Video Solution

5. Rhombus PQRS is inseribed in ΔABC such that $\angle B$ is one of its angle. P, Q and R lie on AB, AC and BC respectively. If AB=12 cm and BC=6 cm, find the sides PQ, RB of the rhombus.

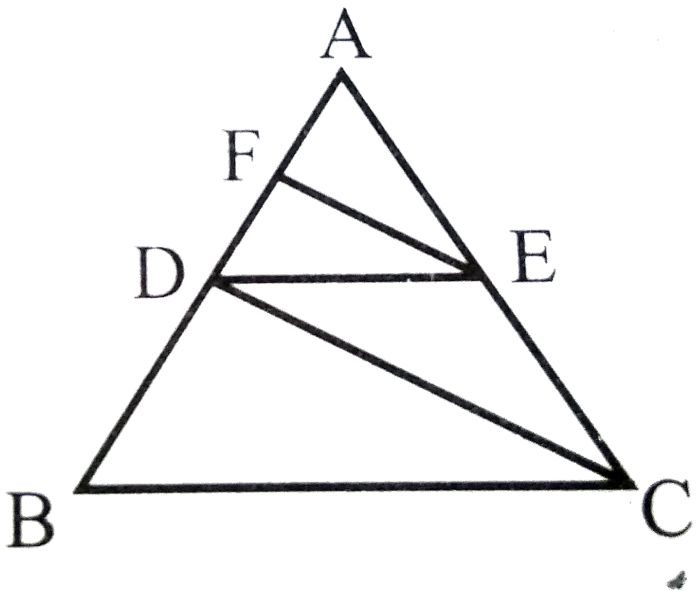
Watch Video Solution

6. In trapezlum ABCD, AB || DC, E and F are points on non-parallel sides AD and BC

respectively, such that EF || AB. Show that $\frac{AE}{ED} = \frac{BF}{FC}$.

Watch Video Solution

7. In figure DE|| BC and CD||EF. Prove that $AD^2 = AB \times AF$.



Watch Video Solution

8. In a ΔABC , AD is the bisector of $\angle A$ meeting side BC at D, if AB=10 cm, AC =14 cm and BC=6 cm, find BD and DC.

Watch Video Solution

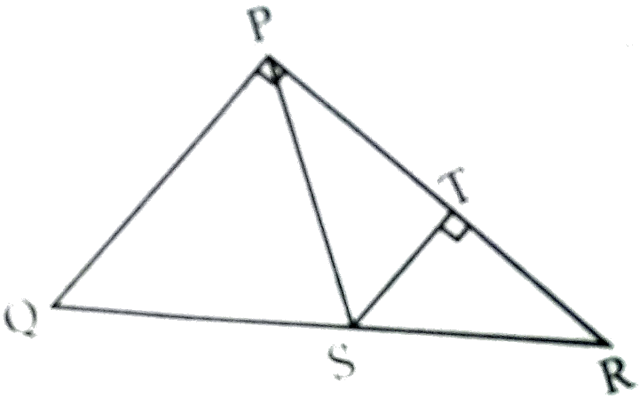
9. Check whether AD is bisector of $\angle A$ of ΔABC in each of the following

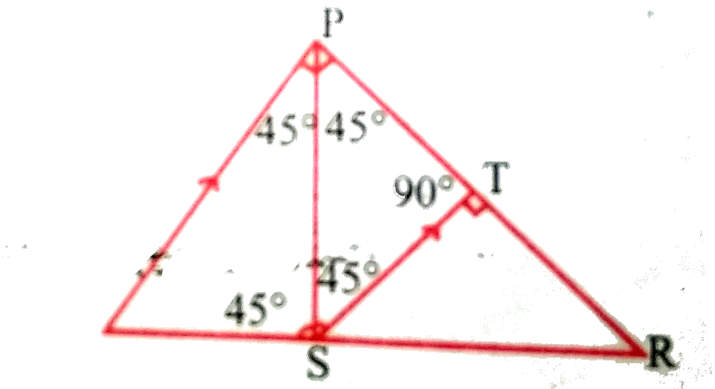
(i) AB=5 cm, AC=10 cm, BD=1.5 cm and CD=3.5 cm.

(ii) AB=4 cm, AC=6 cm, BD=1.6 cm and CD=2.4 cm.

Watch Video Solution

10. In figure $\angle QPC = 90^\circ$, PS is its bisector. If $ST \perp PR$, prove that $ST \times (PQ + PR) = PQ \times PR$.





Watch Video Solution

11. 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 F respectively. Prove that EF || BD.

Watch Video Solution

12. Construct a $\triangle PQR$ in which the base PQ=4.5 cm, $\angle R = 45^\circ$ and the median from R to RG is 6cm.

Watch Video Solution

13. Construct a ΔPQR in which QR= 5 cm, $P = 40^\circ$ and the median PG from P to QR is 4.4 cm. Find the length of the altitude from P to QR.

Watch Video Solution

14. Construct a ΔPQR such that QR= 6.5 cm, $\angle P = 60^\circ$ and the altitude from P to QR is of length 4.5 cm.

Watch Video Solution

15. Construct a ΔABC such that $AB = 5.5cm, \angle C = 25^\circ$ and the altitude from C to AB s 4 cm.

Watch Video Solution

16. Draw a triangle ABC of base $BC = 5.6cm, \angle A = 40^\circ$ and the bisector of $\angle A$ meets BC at D such that CD = 4 cm .

Watch Video Solution

17. Draw ΔPQR such that PQ=6.8 cm, vertical angle is 50° and the bisector of the vertical angle meets the base at D where PD=5.2 cm.

Watch Video Solution

Exercise 4 3

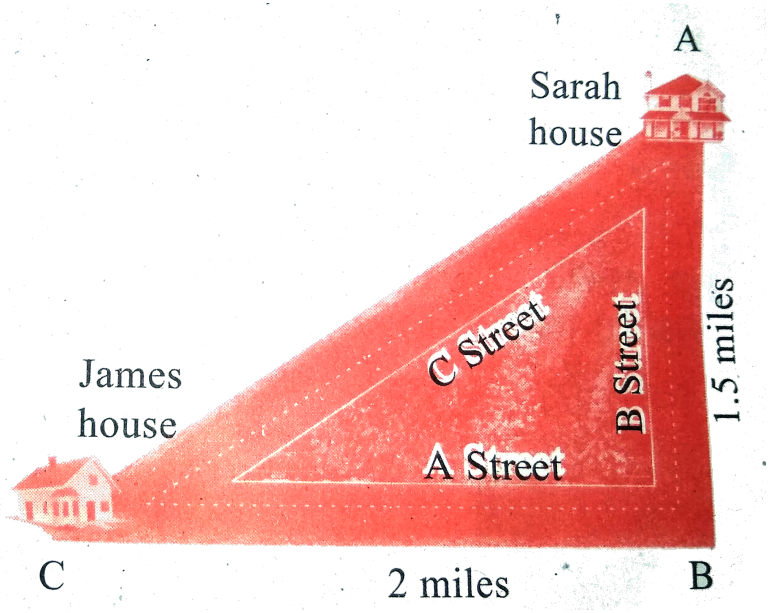
1. A man goes 18 m due east and then 24 m due north. Find the distance of his current

position from the starting point ?

Watch Video Solution

2. There are two paths that one can choose to go from Sarah's house to James house. One way is to take C street, and the other way requires to take A street and then B street. How much shorter is the direct path along C

street ? (Using figure).



Watch Video Solution

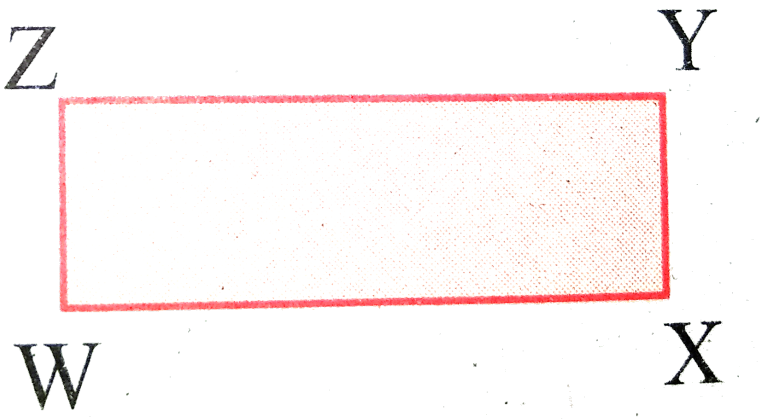
3. To get from point A to point B you must avoid walking through a pond. You must walk 34 m south and 41 m east. To the nearrest

meter, how many meters would be saved if it were possible to make a way through the pond ?

Watch Video Solution

4. In the rectangle WXYZ, XY+YZ=17 cm and XZ+YW=26 cm. Calculate the length and

breadth of the rectangle ?



Watch Video Solution

5. The hypotenuse of a right triangle is 6 m more than twice of the shortest side. If the third side is 2 m less than the hypotenuse, find the sides of the triangle ?

Watch Video Solution

6. 5 m long ladder is placed leaning towards a vertical wall such that it reaches the wall at a point 4 m high. If the foot of the ladder is moved 1.6 m towards the wall, then find the distance by which the top of the ladder would slide upwards on the wall.

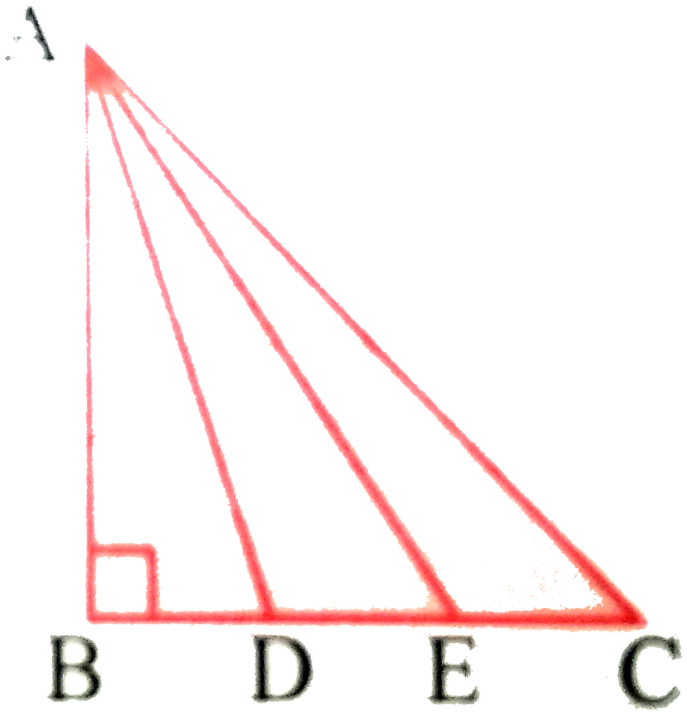
Watch Video Solution

7. The perpendicular PS on the base QR of ΔPQR intersects QR at S, such that QS=3 SR. Prove that $2PQ^2 = 2PR^2 + QR^2$.

Watch Video Solution

8. In the adjacent figure, ABC is a right angled triangle with right angle at B and points D, E trisect BC. Prove that

$8AE^2 = 3AC^2 + 5AD^2.$



Watch Video Solution

Exercise 4 4

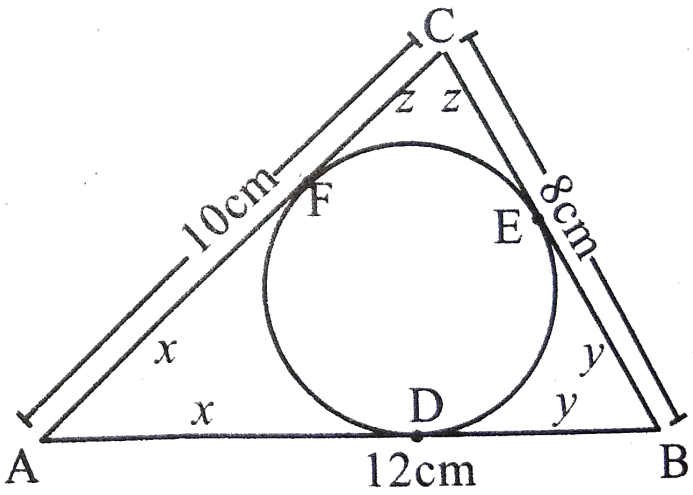
1. The length of the tangent to a circle from a point P, which is 25 cm away from the centre is 24 cm. What is the radius of the circle ?

Watch Video Solution

2. ΔLMN is a right angled triangle with $\angle L = 90^\circ$. A circle is inscribed in it. The lengths of the sides containing the right angle are 6 cm and 8 cm. Find the radius of the circle.

Watch Video Solution

3. A circle is inscribed in ΔABC having sides 8 cm, 10 cm and 12 cm as shown in figure, Find AD, BE and CF.



Watch Video Solution

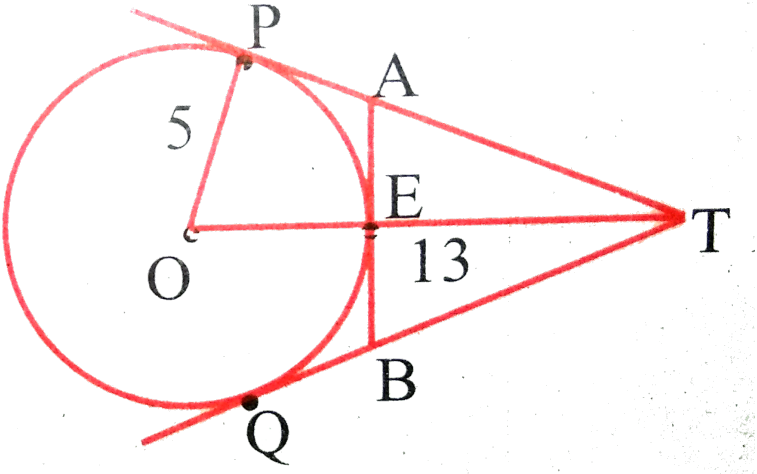
4. PQ is a tangent drawn from a point P to a circle with centre O and QOR is a diameter of the circle such that $\angle POR = 120^\circ$. Find $\angle OPQ$.

Watch Video Solution

5. A tangent ST to a circle touches it at B. AB is a chord such that $\angle ABT = 65^\circ$, Find $\angle AOB$, where O is the centre of the circle.

Watch Video Solution

6. In figure, O is the centre of the circle with radius 5 cm. T is a point such that OT=13 cm and OT intersects the circle E, if AB is the tangent ot the circle at E, find the length of AB.



Watch Video Solution

7. In two concentric circles, a chord of length 16 cm of larger circle becomes a tangent to the smaller circle whose radius is 6 cm. Find the radius of the larger circle.

Watch Video Solution

8. Two circles with centres O and O' of radii 3cm and 4 cm, respectively intersect at two points P and Q, such that OP and O' P are

tangents to the two circles. Find the length of the common chord PQ.

Watch Video Solution

9. Show that the angle bisectors of a triangle are concurrent.

Watch Video Solution

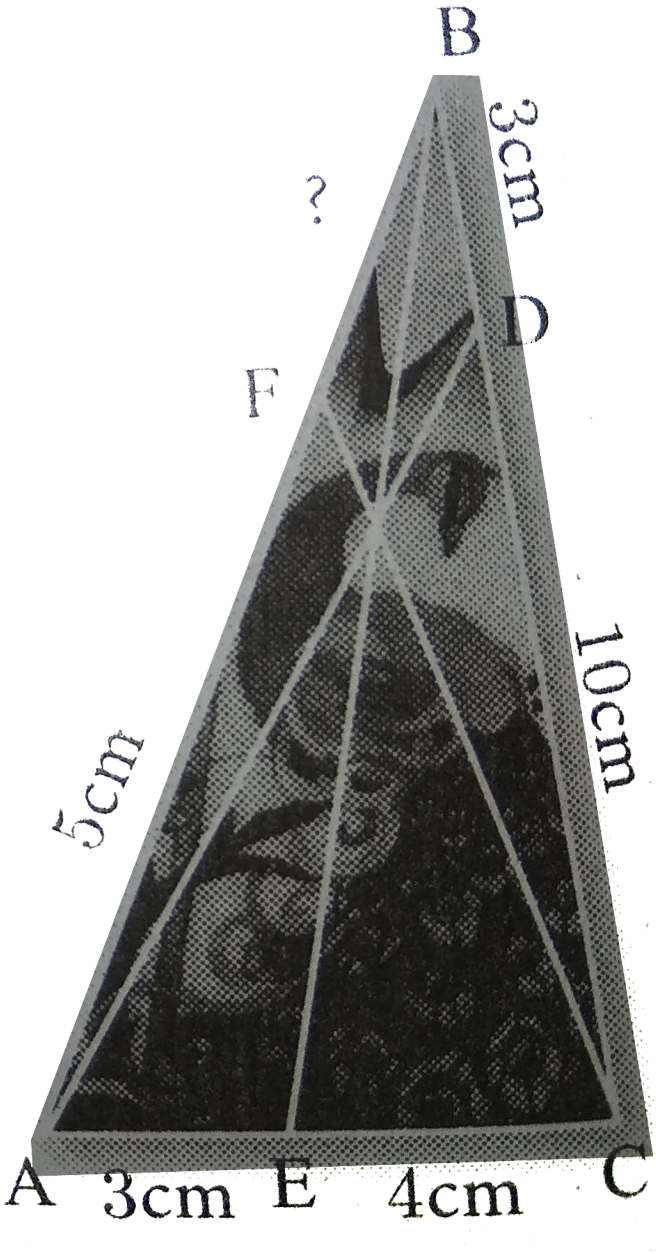
10. In ΔABC, with $\angle B = 90^\circ$, BC=6 cm and AB=8 cm, D is a point on AC such that AD=2 cm

and E is the midpoint of AB. Join D to E and extend it to meet at F. Find BF.

Watch Video Solution

11. An artist has created a triangular stained glass window and has one strip of small length left before completing the window. She needs to figure out the length of left out portion based on the lengths of the other

sides as shown in the figure .



Watch Video Solution

12. Draw a tangent at any point R on the circle of radius 3.4 cm and centre at P ?

Watch Video Solution

13. Draw a circle of radius 4.5 cm. Take a point on the circle. Draw the tangent at that point using the alternate segment theorem.

Watch Video Solution

14. Draw the two tangents from a point which is 10 cm away from the centre of a circle of radius 5 cm. Also, measure the lengths of the tangents.

Watch Video Solution

15. Take a point which is 11 cm away from the centre of a circle of radius 4 cm and draw the two tangents to the circle from that point.

Watch Video Solution

16. Draw the two tangents from a point which is 5 cm away from the centre of a circle of diameter 6 cm. Also, measure the lengths of the tangents.

Watch Video Solution

17. Draw a tangent to the circle from the point P having radius 3.6 cm and centre at O. Point P is at a distance 7.2 cm from the centre.

Watch Video Solution

Exercise 4 5 Multiple Choice Questions

1. If in triangles ABC and EDF, $\frac{AB}{DE} = \frac{BC}{FD}$ then they will be similar, when

A. $\angle B = \angle E$

B. $\angle E = \angle D$

C. $\angle B = \angle D$

D. $\angle A = \angle F$

Answer: C

Watch Video Solution

2. If $\triangle LMN, \angle L = 60^\circ, \angle M = 50^\circ,$ if $\triangle LMN - \triangle PQR$ then the value of $\angle R$ is ___.

A. 40°

B. 70°

C. 30°

D. 110°

Answer: B

Watch Video Solution

3. If ΔABC is an isosceles triangle with $\angle C = 90^\circ$ and AC=5 cm, then AB is

A. 2.5 cm

B. 5 cm

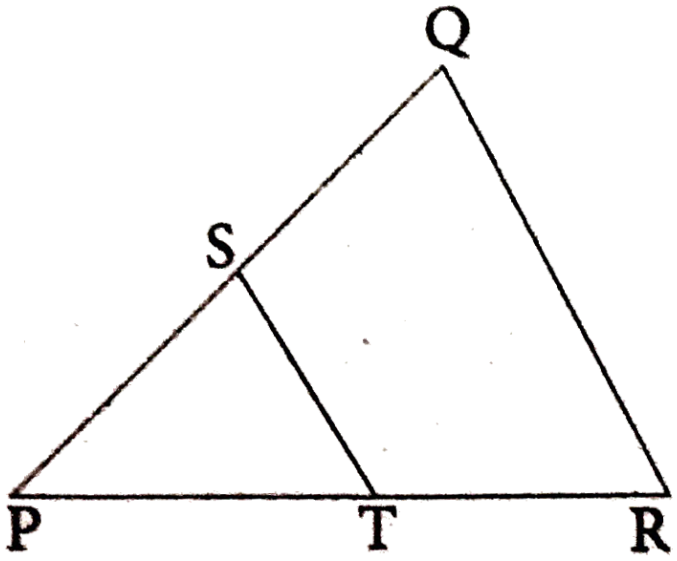
C. 10 cm

D. $5\sqrt{2}$ cm

Answer: D

Watch Video Solution

4. In a given figure, ST||QR, PS=2 cm and QS=3 cm. Then the ratio of the area of $\triangle PQR$ to the area of $\triangle PST$ is ___.



A. $25:4$

B. $25:7$

C. $25:11$

D. $25:13$

Answer: A

Watch Video Solution

5. The perimeters of two similar triangles $\triangle ABC$ and $\triangle PQR$ are 36 cm and 24 cm

respectively. If PQ=10 cm, then the length of AB is ____.

A. $6\frac{2}{3}$ cm

B. $\frac{10\sqrt{6}}{3}cm$

C. $66\frac{2}{3}cm$

D. 15 cm

Answer: D

Watch Video Solution

6. If in ΔABC, DE|| BC . AB=3.6 cm, AC=2.4 cm and AD=2.1 cm then the length of AE is

A. 1.4 cm

B. 1.8 cm

C. 1.2 cm

D. 1.05 cm

Answer: A

Watch Video Solution

7. In a ΔABC, Adis the bisector of $\angle BAC$. If AB=8 cm, BD=6 cm and DC=3 cm. The length of the side AC is

A. 6 cm

B. 4 cm

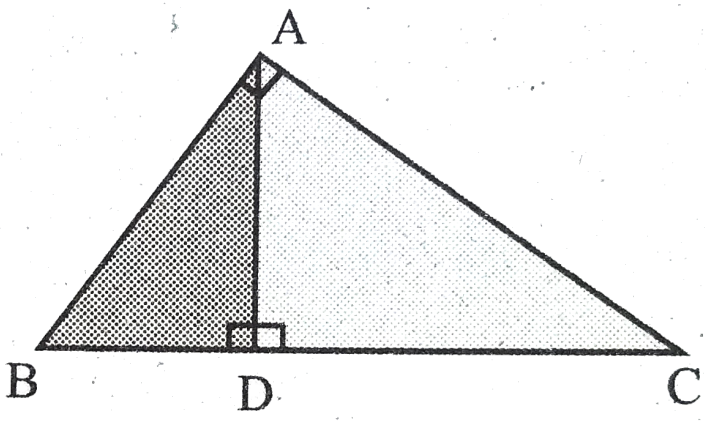
C. 3 cm

D. 8 cm

Answer: B

Watch Video Solution

8. In the adjacent figure $\angle BAC = 90^\circ$ and $AD \perp BC$ then



A. $BD.CD = BC^2$

B. $AB.AC = BC^2$

C. $BD.CD = AD^2$

D. $AB.AC = AD^2$

Answer: C

Watch Video Solution

9. Two poles of heights 6 m and 11 stand vertically on a plane ground. If the distance between their feet is 12 m, what is the distance between their tops ?

A. 13m

B. 14m

C. 15m

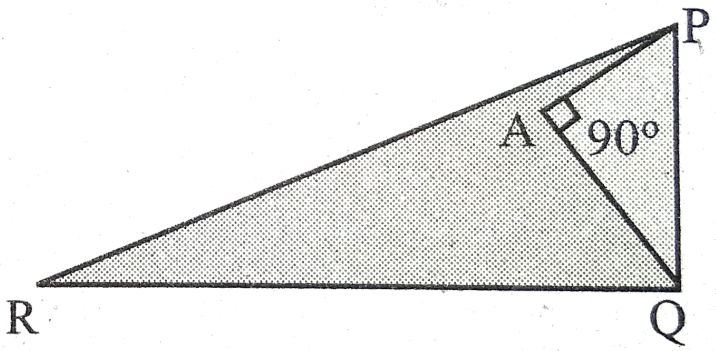
D. 12.8 m

Answer: A

Watch Video Solution

10. In the given figure, PR= 26 cm, QR=24 cm, $PAQ = 90^\circ$, $PA = 6cm$ and QA=8 cm. Find

$\angle PQR$



A. 80°

B. 85°

C. 75°

D. 90°

Answer: D

Watch Video Solution

11. A tangent is perpendicular to the radius at the

A. centre

B. point of contact

C. infinity

D. chord

Answer: B

Watch Video Solution

12. How many tangents can be drawn to the circle from an exterior point ?

A. one

B. two

C. infinity

D. zero

Answer: B

Watch Video Solution

13. The two tangents from an external points P to a circle with centre at O are PA and PB. If $\angle APB = 70^\circ$ then the value of $\angle AOB$ is

A. 100°

B. 110°

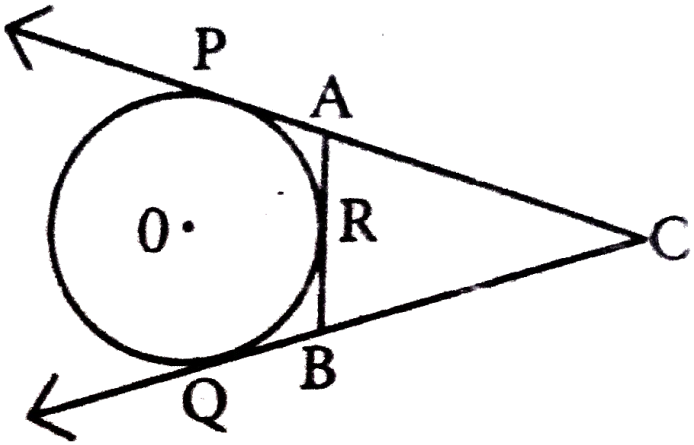
C. 120°

D. 130°

Answer: B

Watch Video Solution

14. In figure CP and CQ are tangents to a circle with centre at 0. ARB is another tangent touching the circle at R. If $CP = 11cm$ and $BC = 7cm$, then the length of BR is ___.



A. 6cm

B. 5cm

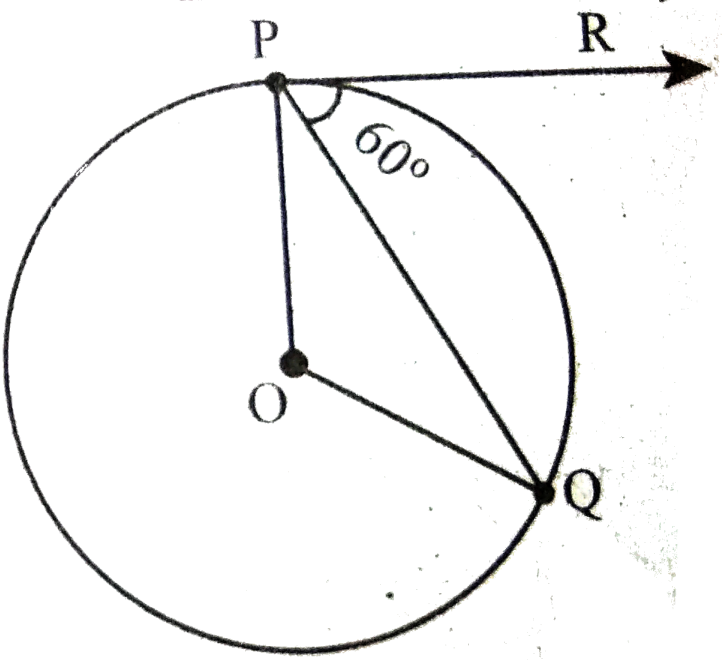
C. 8cm

D. 4cm

Answer: D

Watch Video Solution

15. In figure if PR is tangent to the circle at P and O is the centre of the circle then $\angle POQ$ is



A. 120°

B. 100°

C. 110°

D. 90°

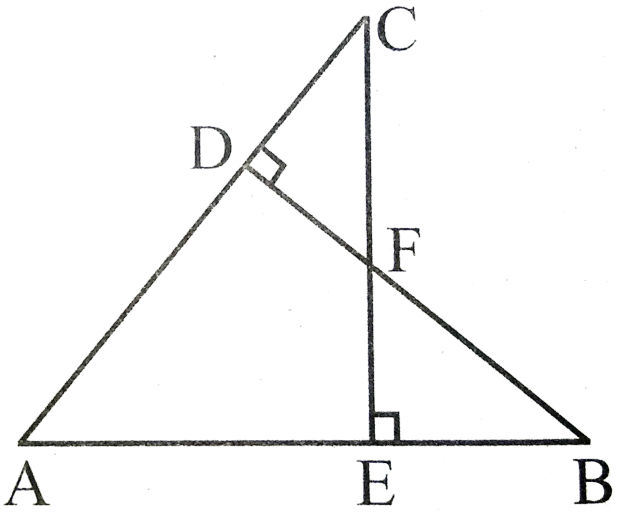
Answer: A

Watch Video Solution

Unit Exercise 4

1. In the figure, if $BD \perp AC$ and $CE \perp AB$, prove that

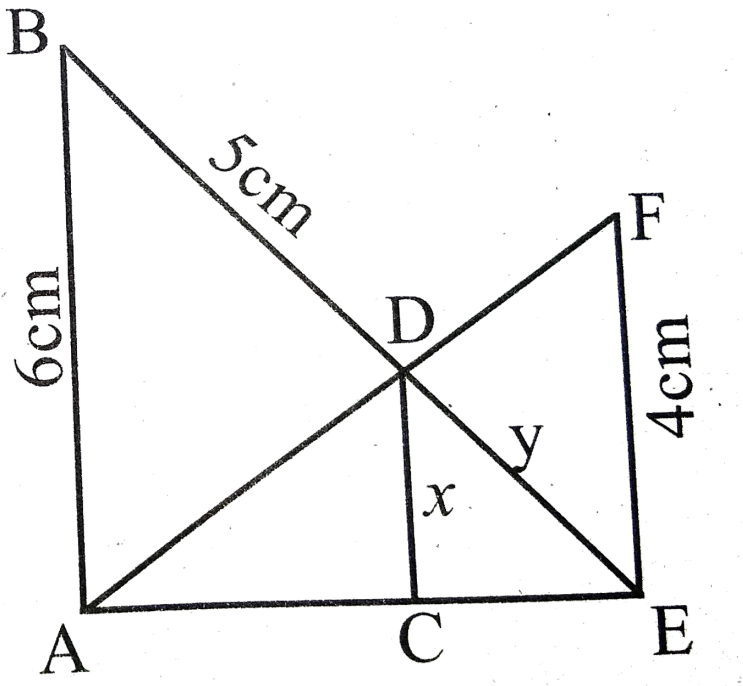
$(i)\Delta AEC \sim \Delta ADB$ $(ii)\frac{CA}{AB} = \frac{CE}{DB}$



Watch Video Solution

2. In the given figure, AB||CD ||EF. If AB=6 cm, CD= x cm, EF=4 cm, BD=5 cm and DE=y cm. Find

x and y .



Watch Video Solution

3. O is any point inside a triangle ABC. The bisector of $\angle AOB, \angle BOC$ and $\angle COA$ meet

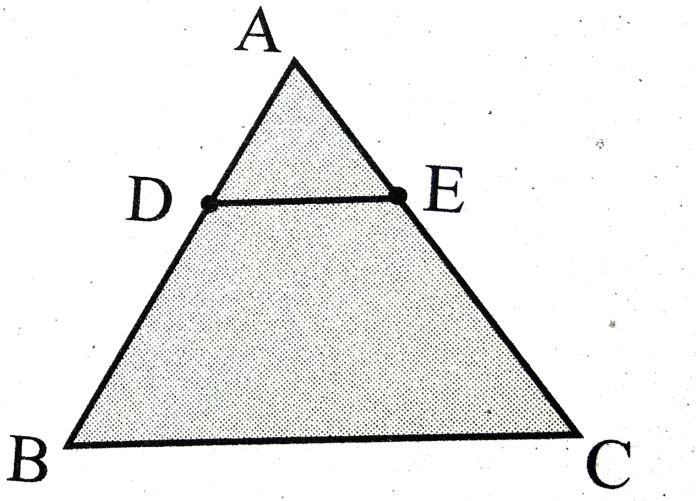
the sides AB, BC and CA in point D, E and F respectively.

Show that $AD \times BE \times CF = DB \times EC \times FA$

Watch Video Solution

4. In the figure, ABC is a triangle in which AB= AC. Points D and E are points on the side AB and AC respectively such that AD=AE. Show

that points B, C, E and D lie on a same circle.



Watch Video Solution

5. Two trains leave a railway station at the same time. The first train travels due west and the second train due north . The first train travels at a speed of 20 km/ hr and the second

train travels at 30 km/ hr. After 2 hours, what is the distance between them ?

Watch Video Solution

6. 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) $c^2 = p^2 - ax + \frac{a^2}{4}$

$(iii) b^2 + c^2 = 2p^2 + \frac{a^2}{2}$

Watch Video Solution

7. A man whose eye-level is 2 m above the ground wishes to find the height of a tree. He places a mirror horizontally on the ground 20 m from the tree and finds that if he stands at a point C which is 4m from the mirror B, he can see the reflection of the top of the tree. How height is the tree ?

Watch Video Solution

8. An emu which is 8 ft tall standing at the foot of a pillar which is 30 ft height. It walks away from the pillar. The shadow of the emu falls beyond emu. What is the relation between the length of the shadow and the distance from the emu to the pillar ?

Watch Video Solution

9. Two circles intersect at A and B. From a point P on one of the circles lines PAC and PBD

are drawn intersecting the second circle at C and D. Prove that CD is parallel to the tangent at P.

Watch Video Solution

10. Let ABC be a triangle and D,E,F are points on the respective sides AB, BC, AC (or their extensions). Let AD : DB=5 : 3, BE : EC= 3 : 2 and AC=21. Find the length of the line segment CF.

Watch Video Solution

Additional Questions Solved Multiple Choice Questions

1. If a straight line intersects the sides AB and AC of a $\triangle ABC$ at D and E respectively and is parallel to BC , then $\frac{AE}{AC} =$ . .....

A. $\frac{AD}{DB}$

B. $\frac{AD}{AB}$

C. $\frac{DE}{BC}$

D. $\frac{AD}{EC}$

Answer: B

Watch Video Solution

2. In $\triangle ABC$, DE is || to BC, meeting AB and AC at D and E . If AD = 3cm , BD = 2cm and AE = 2.7 cm , then AC is equal to .....

A. 6.5 cm

B. 4.5 cm

C. 3.5 cm

D. 3.5 cm

Answer: B

Watch Video Solution

3. In $\triangle PQR$, RS is the bisector of $\angle R$.if PQ = 6cm , QR = 8cm, RP = 4cm then PS is equal to .....

A. 2cm

B. 4cm

C. 3cm

D. 6cm

Answer: A

Watch Video Solution

4. In figure , if $\frac{AB}{AC} = \frac{BD}{DC}$, $\angle B = 40^\circ$ and $\angle C = 60^\circ$, then $\angle BAD$ = ...

A. 30°

B. 50°

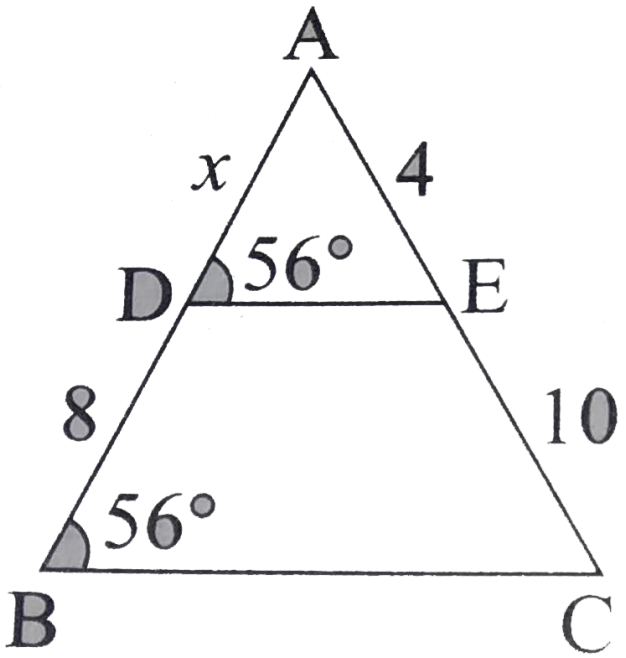
C. 80°

D. 40°

Answer: D

Watch Video Solution

5. In the figure , the value x is equal to .....



A. 4.2

B. 3.2

C. 0.8

D. 0.4

Answer: B

Watch Video Solution

6. In triangles ABC and DEF , $\angle B = \angle E, \angle C = \angle F$, then .....

A. $\frac{AB}{DE} = \frac{CA}{EF}$

B. $\frac{BC}{EF} = \frac{AB}{FD}$

C. $\frac{AB}{DE} = \frac{BC}{EF}$

D. $\frac{CA}{FD} = \frac{AB}{EF}$

Answer: C

Watch Video Solution

7. If in a Triangle ABC $\angle A = 60^o, \angle B = 70^o$ what will $\angle C$ be?

Watch Video Solution

8. A vertical stick 12m long casts a shadow 8m long on the ground. At the same time a tower casts the shadow 40m long onthe ground. Determine the height of the tower.

A. 40 m

B. 50 m

C. 75 m

D. 60 m

Answer: D

Watch Video Solution

9. The sides of two similar triangles are in the ratio $2:3$, then their areas are in the ratio .....

A. $9:4$

B. $4:9$

C. $2:3$

D. $3:2$

Answer: B

Watch Video Solution

10. Triangle ABC and DEF ar similar . If their areas are $100cm^2$ and $49cm^2$ respectively and BC is 8.2 cm then EF = ...

A. 5.47 cm

B. 5.74 cm

C. 6.47 cm

D. 6.74 cm

Answer: B

Watch Video Solution

11. The perimeters of two similar triangles are 24cm and 18 cm respectively . If one side of the first triangle is 8cm , then the corresponding side of the other triangle is .....

A. 4cm

B. 3cm

C. 9 cm

D. 6cm

Answer: D

Watch Video Solution

12. A point P is 26 cm away from the centre O of a circle and PT is the tangent drawn from P to circle is 10 cm , then OT is equal to .....

A. 18 cm

B. 20 cm

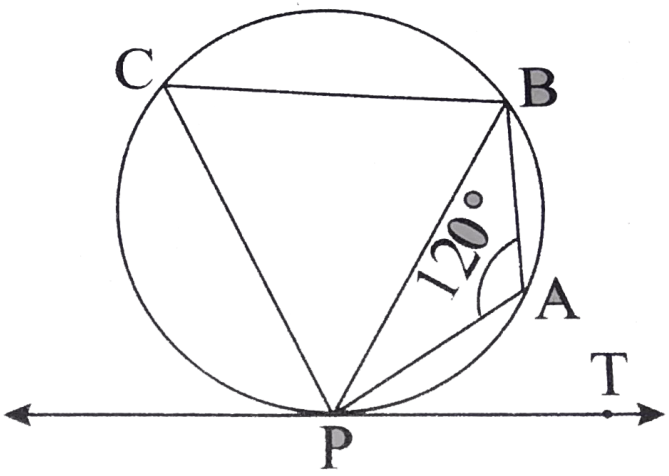
C. 18 cm

D. 24cm

Answer: D

Watch Video Solution

13. In the figure ,if $\angle PAB = 120^\circ$ then $\angle BPT =$ .....



A. 120°

B. 30°

C. 40°

D. 60°

Answer: D

Watch Video Solution

14. If the tangents PA and PB from an external point P to circle with centre O are inclined to each other at an angle of 40° , then $\angle POA$ = ...

A. 70°

B. 80°

C. 50°

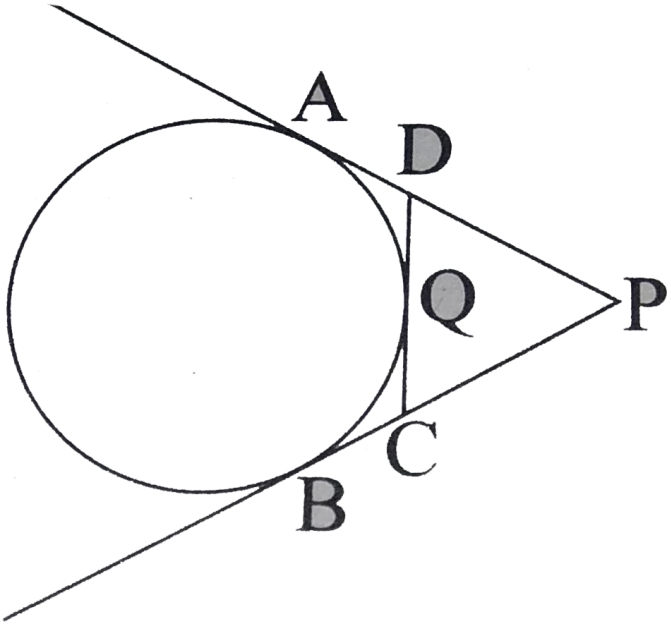
D. 60°

Answer: A

Watch Video Solution

15. In the figure ,PA and PB are tangents to the circle drawn from an external point P. also CD is a tangent to the circle at Q. if PA = 8 cm and

CQ = 3cm , then PC is equal to .....



A. 11cm

B. 5cm

C. 24cm

D. 30 cm

Answer: B

Watch Video Solution

16. ΔABC is a right angled triangle where $\angle B = 90^\circ$ and $BD \perp AC$. If BD = 8 cm , AD = 4 cm , then CD is .....

A. 24 cm

B. 16cm

C. 32 cm

D. 8cm

Answer: B

Watch Video Solution

17. The areas of two similar triangles are $16cm^2$ and $36cm^2$ respectively. If the altitude of the first triangle is 3 cm , then the corresponding altitude of the other triangle is .....

A. 6.5 cm

B. 6 cm

C. 4cm

D. 4.5 cm

Answer: D

Watch Video Solution

18. The perimeter of two similar triangles ΔABC and ΔDEF are 36 cm and 24 cm respectively . If DE = 10 cm , then AB is .....

A. 12cm

B. 20cm

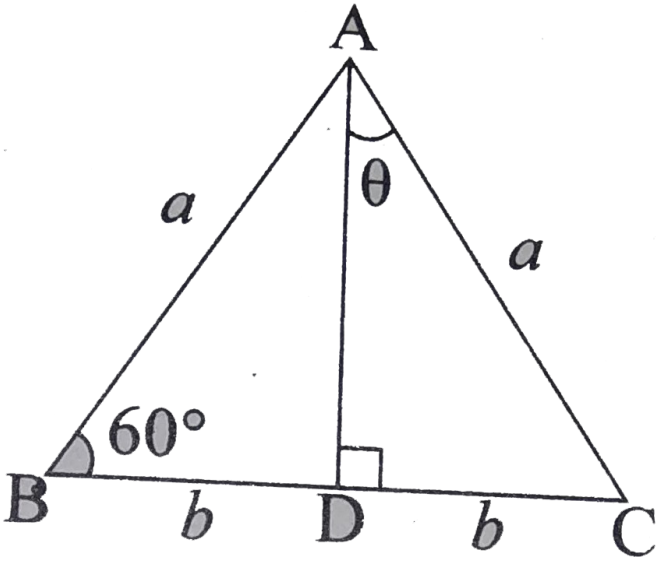
C. 15cm

D. 18cm

Answer: C

Watch Video Solution

19. In the given diagram θ is .....



A. 15°

B. 30°

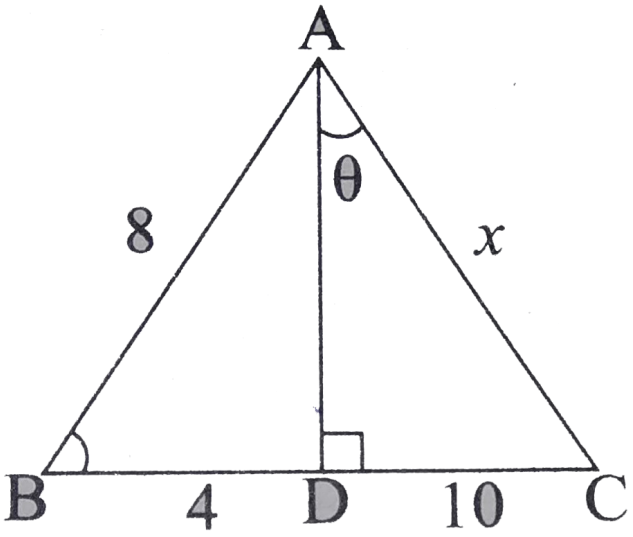
C. 45°

D. 60°

Answer: B

Watch Video Solution

20. If AD is the bisector of $\angle A$ then AC is



A. 12

B. 16

C. 18

D. 20

Answer: D

Watch Video Solution

21. In ΔABC and $\Delta DEF, \angle A = \angle E$ and $\angle B = \angle F$. Then AB : AC is .....

A. DE : DF

B. DE : EF

C. EF : ED

D. DF : EF

Answer: C

Watch Video Solution

22. Two circles of radius 8.2 cm and 3.6 cm touch each other externally , the distance between their centres is .....

A. 1.8cm

B. 4.1 cm

C. 4.6 cm

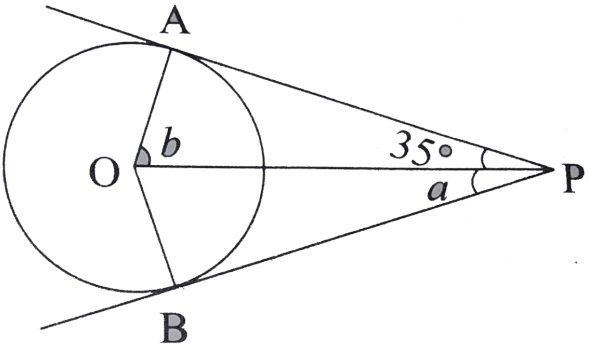
D. 11.8 cm

Answer: D

Watch Video Solution

23. In the given diagram PA and PB are tangents drawn from P to a circle with centre

O. $\angle OPA = 35^\circ$ then a and b is .....



A. $a = 30^\circ, b = 60^\circ$

B. $a = 35^\circ, b = 55^\circ$

C. $a = 40^\circ, b = 50^\circ$

D. $a = 45^\circ, b = 45^\circ$

Answer: B

Watch Video Solution

Additional Questions Solved Answer The Following Questions

1. The image of man height 1.8m , is of length 1.5 cm on the film of a camera . If the film is 3 cm from the camera, how far is the man from the camera ?

Watch Video Solution

2. A girl of height 120cm is walking away from the base of a lamp post at a speed of 0.6 m/sec. . If the lamp is 3.6 m above the ground level, then find the length of her shadow after 4 seconds.

Watch Video Solution

3. In ΔABC , AB = AC and BC = 6cm, D is a point on the side AC such that AD = 5cm and

CD = 4cm, show that $\Delta BCD \sim \Delta ABC$ and hence find DB .

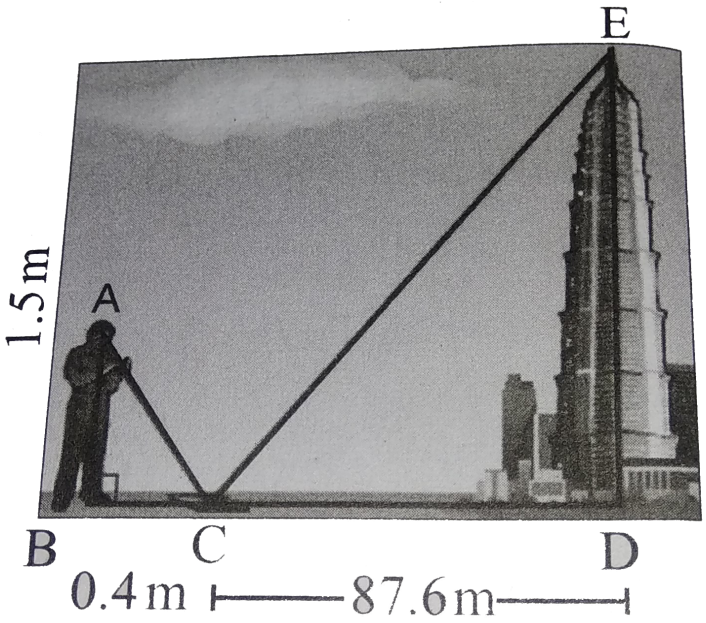
Watch Video Solution

4. The length of three sides of a triangle ABC are 6cm . , 4 cm and 9 cm . $\Delta PQR \sim \Delta ABC$. One of the lengths of sides of ΔPQR is 35 cm. what is the greatest perimeter possible for ΔPQR ?

Watch Video Solution

5. A man sees the top of a tower in a mirror which is at a distance of 87.6 m from the tower. The mirror is on the ground , facing upward. The man is 0.4 m away from the mirror and the distance of his eye level from the ground is 1.5 m . How tall is the tower ? (The foot of man, the mirror and the foot of the tower lie

along a straight line)



Watch Video Solution

6. In ΔPQR , given that S is a point on PQ such that ST || QR and $\frac{PS}{SQ} = \frac{3}{5}$. If PR = 5.6 cm , then find PT .

Watch Video Solution

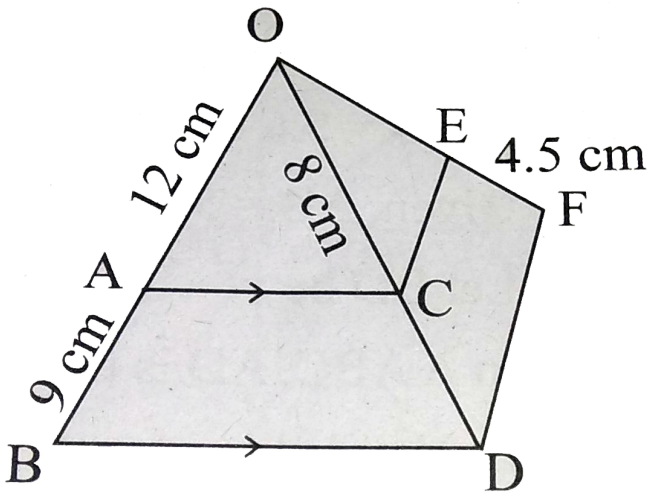
7. In ΔABC, D and E are points on the sides AB and AC respectively such that $DE \mid\mid BC$

(i) If $\frac{AD}{DB} = \frac{3}{4}$ and AC=15 cm find AE.

(ii) If AD=8x-7, DB=5x-3, AE= 4x-3 and EC=3x - 1, find the value of x.

Watch Video Solution

8. In the figure , AC || BD and CE || DF . If OA = 12 cm, AB = 9cm , OC = 8 cm and EF = 4.5 cm , then find FO .



Watch Video Solution

9. Check whether AD is bisector of $\angle A$of $\triangle ABC$ in each of the following .

(i) AB = 4cm, AC = 6cm, BD = 1.6 cm , and CD = 2.4 cm

(ii) AB = 6cm , AC =8cm , BD = 1.5 cm and CD = 3 cm

Watch Video Solution

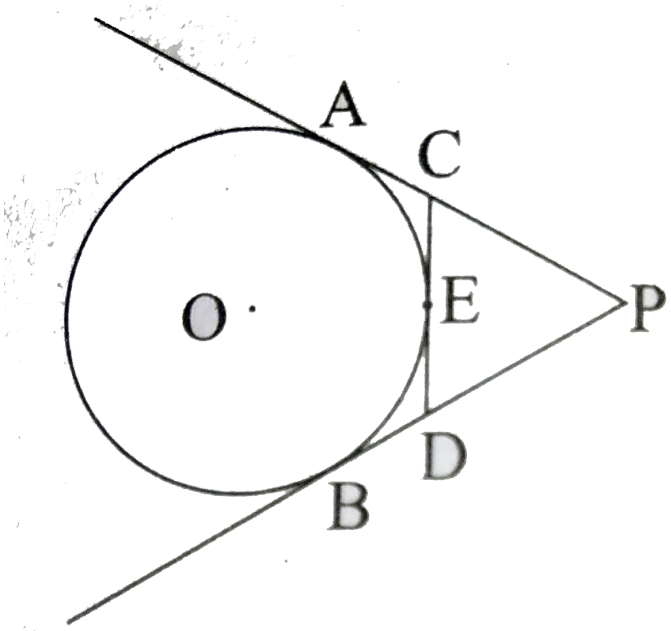
10. In a ΔABC , AD is the internal bisector of $\angle A$, meeting BC at D . If AB = 5.6 cm, AC = 6cm

and DC = 3 cm , find BC

Watch Video Solution

11. In the figure , tangent PA and PB are drawn to a circle with centre O from an external point P. If CD is a tangent to the circle at E and

AP = 15cm, find the perimeter of ΔPCD .



Watch Video Solution

12. ABCD is quadrilateral such that all of its sides touch a circle . If AB = 6cm, BC = 6.5 cm

and CD = 7cm , then find the length of AD .

Watch Video Solution

13. A man goes 10 m due east and then 24 m due north. Find the distance of his current position from the starting point ?

Watch Video Solution

14. If in a Triangle ABC $\angle A = 80^o$, $\angle B = 20^o$ what will $\angle C$ be?

Watch Video Solution

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

Watch Video Solution

16. In figure O is any point inside a rectangle ABCD. Prove that $OB^2 + OD^2 = OA^2 + OC^2$

.

Watch Video Solution

17. A lotus is 20 cm above the water surface in a pond and its stem is partly below the water surface . As the wind blew , the stem is pushed aside so that the lotus touched the water 40 cm away from the original position of the stem . How muc of the stem was below the water surface originally ?

Watch Video Solution

18. In the figure , DE || BC and $\frac{AD}{DB} = \frac{3}{5}$, calculate the value of

(i) $\frac{\text{area of } \Delta ADE}{\text{area of } \Delta ABC}$

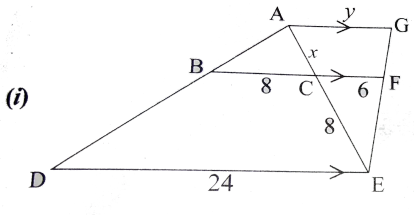
(ii) $\frac{\text{area of trapezium BCED}}{\text{area of } \Delta ABC}$

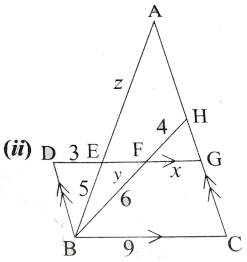
Watch Video Solution

19. A boy is designing a diamond shaped kite , as shown in the figure where AE = 16 cm , EC = 81 cm .He wants to use a straight cross bar BD. How long should it be ?

View Text Solution

20. Find the unknown values in each of the following figures . All lengthaar given in centimeters. (All measures are not in scale)





View Text Solution

21. The internal bisector of $\angle A$ of ΔABC meets BC at D and the external bisector of $\angle A$ meets BC produced at E. Prove that $\frac{BD}{BE} = \frac{CD}{CE}$.

Watch Video Solution

22. ABCD is quadrilateral with AB parallel to DC. A line drawn parallel to AB meets AD at P and BC at Q. prove that $\frac{AP}{PD} = \frac{BQ}{QC}$

Watch Video Solution

23. D is the midpoint of the side BC of ΔABC . If P and Q are points o AB and on AC such that DP bisects $\angle BDA$ and DQ bisects $\angle ADC$, then prove that PQ || BC

Watch Video Solution

24. ABCD is trapezium with AB || DC. The diagonal AC and BD intersect at E . If $\Delta AED \sim \Delta BEC$. Prove that AD = BC .

Watch Video Solution

Thinking Corner

1. Can we draw two tangents parallel to each other on a circle ?

Watch Video Solution

2. Can we draw two tangents perpendicular to each other on a circle ?

Watch Video Solution