CDS 1 2025

LIVE

MATHS

GEOMETRY

CLASS 5

NAVJYOTI SIR

Crack
EXAMS

11 Nov 2024 Live Classes Schedule

8:00AM	11 NOVEMBER 2024 DAILY CURRENT AFFAIRS	RUBY MA'AM
9:00AM	11 NOVEMBER 2024 DAILY DEFENCE UPDATES	DIVYANSHU SIR

SSB INTERVIEW LIVE CLASSES

9:30AM	OVERVIEW OF SRT & SDT	ANURADHA MA'AM

NDA 1 2025 LIVE CLASSES

11:30AM	GK - MODERN HISTORY - CLASS 2	RUBY MA'AM
4:00PM	MATHS - BINOMIAL THEOREM - CLASS 1	NAVJYOTI SIR
5:30PM	ENGLISH - COMPREHENSION - CLASS 2	ANURADHA MA'AM

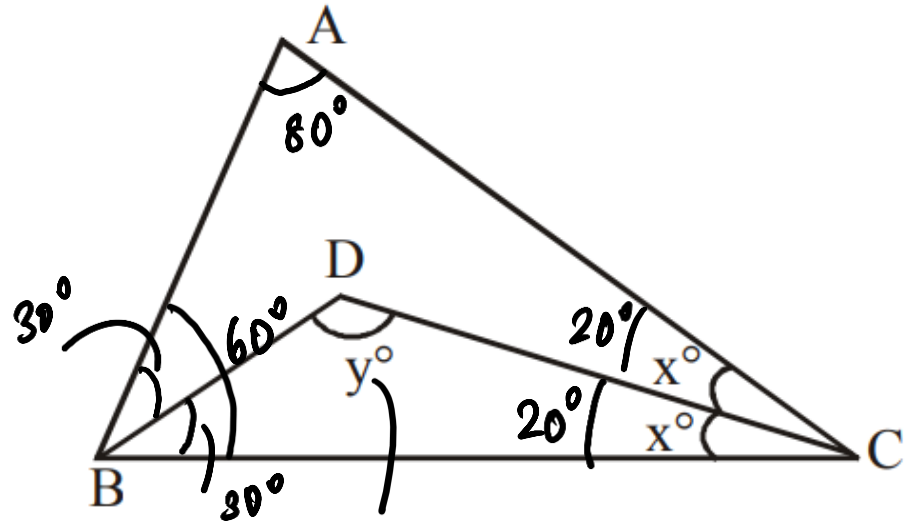
CDS 1 2025 LIVE CLASSES

11:30AM	GK - MODERN HISTORY - CLASS 2	RUBY MA'AM
5:30PM	ENGLISH - COMPREHENSION - CLASS 2	ANURADHA MA'AM
7:00PM	MATHS - GEOMETRY - CLASS 5	NAVJYOTI SIR

AFCAT 1 2025 LIVE CLASSES

5:30PM	ENGLISH - COMPREHENSION - CLASS 2	ANURADHA MA'AM

Q) In the figure given below, $\angle A = 80°$ and $\angle ABC = 60°$. BD and CD bisect angles B and C respectively. What are the values of x and y respectively ?

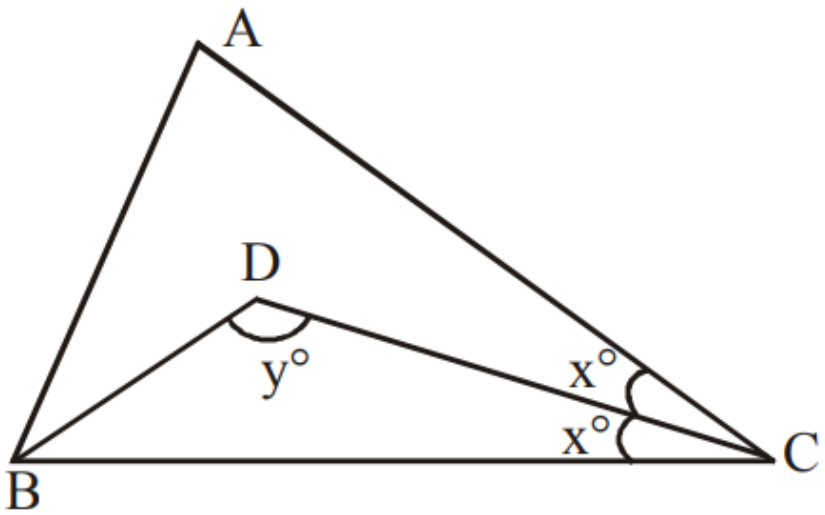


(a) 10 and 130
(b) 10 and 125
(c) 20 and 130
(d) 20 and 125

$\triangle ABC$ — angle sum,

$\triangle DBC$ — $\angle D = \angle y = 130°$

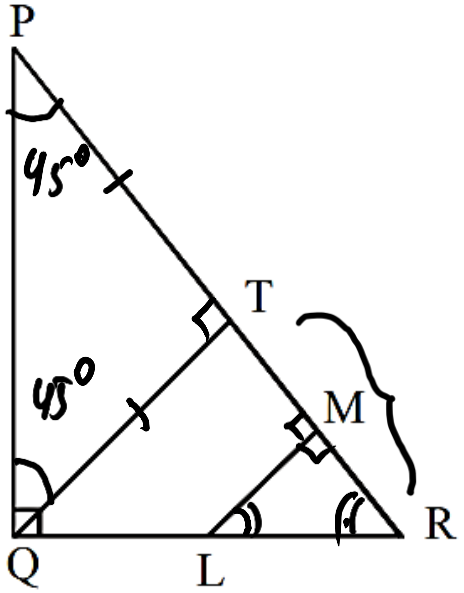
Q) In the figure given below, $\angle A = 80°$ and $\angle ABC = 60°$. BD and CD bisect angles B and C respectively. What are the values of x and y respectively ?



(a) 10 and 130
(b) 10 and 125
(c) 20 and 130
(d) 20 and 125

Ans: (c)

Q) In the figure given below, PQR is a non-isosceles right-angled triangle, right angled at Q. If LM and QT are parallel and QT = PT, then what is ∠RLM equal to ?



(a) ∠PQT
(b) ∠LRM
(c) ∠RML
(d) ∠QPT

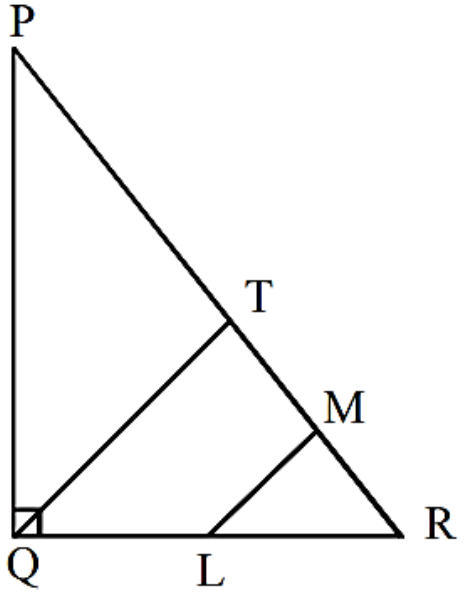
$QT = PT = RT$

$TQ \parallel ML$

$\angle PTQ = 90^\circ = \angle TML$ (corresponding angles for parallel lines)

$\angle RML = 90^\circ$

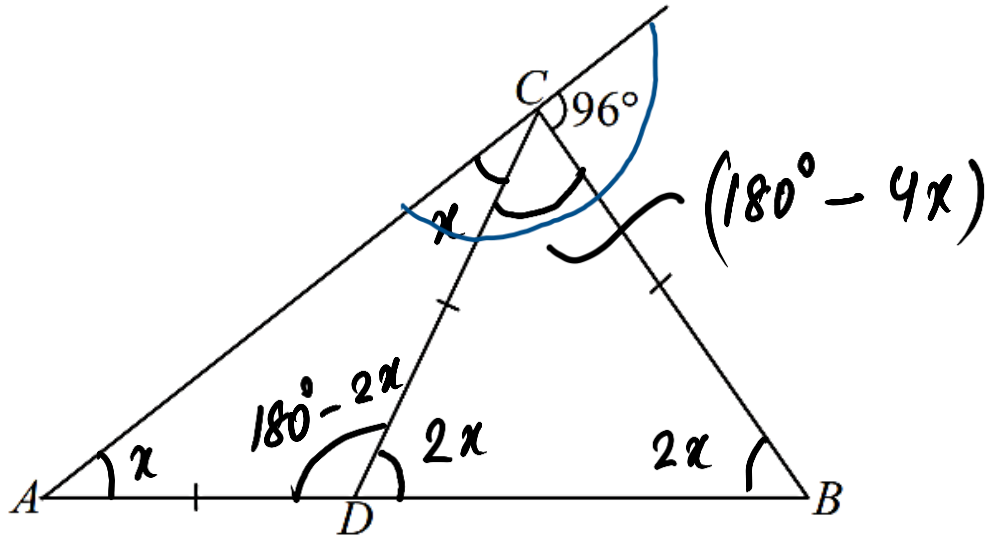
Q) In the figure given below, PQR is a non-isosceles right-angled triangle, right angled at Q. If LM and QT are parallel and QT = PT, then what is ∠RLM equal to ?



(a) ∠PQT
(b) ∠LRM
(c) ∠RML
(d) ∠QPT

Ans: (b)

Q)



In the figure given above, $AD = CD = BC$. What is the value of $\angle CDB$

(a) 32°
(b) 64°
(c) 78°

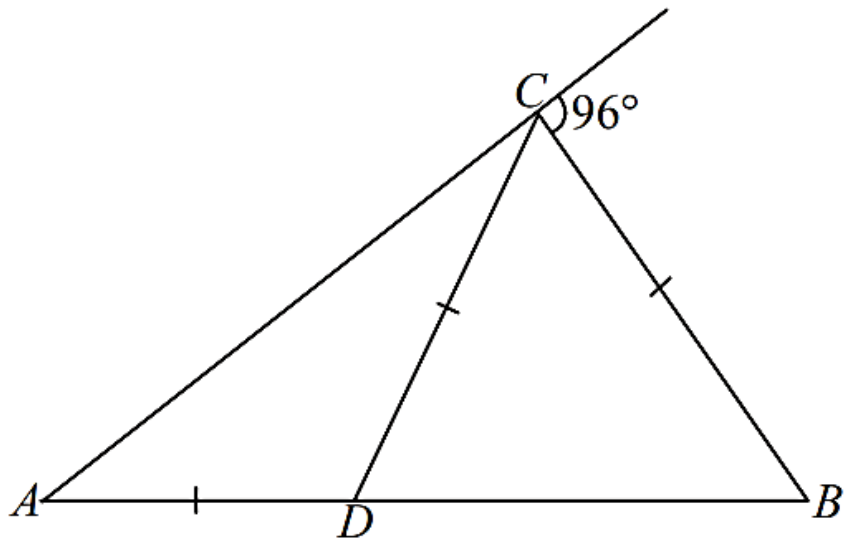
$x + 180° - 4x + 96° = 180°$

$3x = 96°$

$x = 32°$

$2x = 2 \times 32° = 64°$

Q)



In the figure given above, $AD = CD = BC$. What is the value of $\angle CDB$

(a) 32°
(b) 64°
(c) 78°

Ans: (b)

Q) If the bisectors BI and CI of the angles B and C of a ΔABC meet at the point I, then what is $\angle BIC$ equal to?

(a) $2A$

(b) $90° + \frac{A}{2}$ ✓

(c) $90° - \frac{A}{2}$

(d) $90° + A$

I → incentre

$90° + \frac{\angle A}{2}$

Q) If the bisectors BI and CI of the angles B and C of a ΔABC meet at the point I, then what is $\angle BIC$ equal to?

(a) $2A$

(b) $90^\circ + \frac{A}{2}$

(c) $90^\circ - \frac{A}{2}$

(d) $90^\circ + A$

Ans: (b)

Q) For a triangle, the radius of the circumcircle is double the radius of the inscribed circle, then which one of the following is correct ?

(a) The triangle is a right-angled
(b) The triangle is an isosceles
(c) The triangle is an equilateral ✓
(d) None of the above

$R = 2r$

$R = \frac{a}{\sqrt{3}}$

$r = \frac{a}{2\sqrt{3}}$

Q) For a triangle, the radius of the circumcircle is double the radius of the inscribed circle, then which one of the following is correct ?

(a) The triangle is a right-angled
(b) The triangle is an isosceles
(c) The triangle is an equilateral
(d) None of the above

Ans: (c)

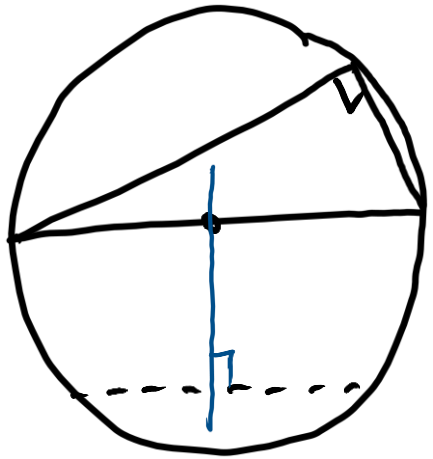
Q) Consider the following statements

I. The perpendicular bisector of a chord of a circle does not pass through the centre of the circle.

II. The angle in a semi-circle is a right angle.

Which of the statements given above is/are correct?

(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II



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I. The perpendicular bisector of a chord of a circle does not pass through the centre of the circle.

II. The angle in a semi-circle is a right angle.

Which of the statements given above is/are correct?

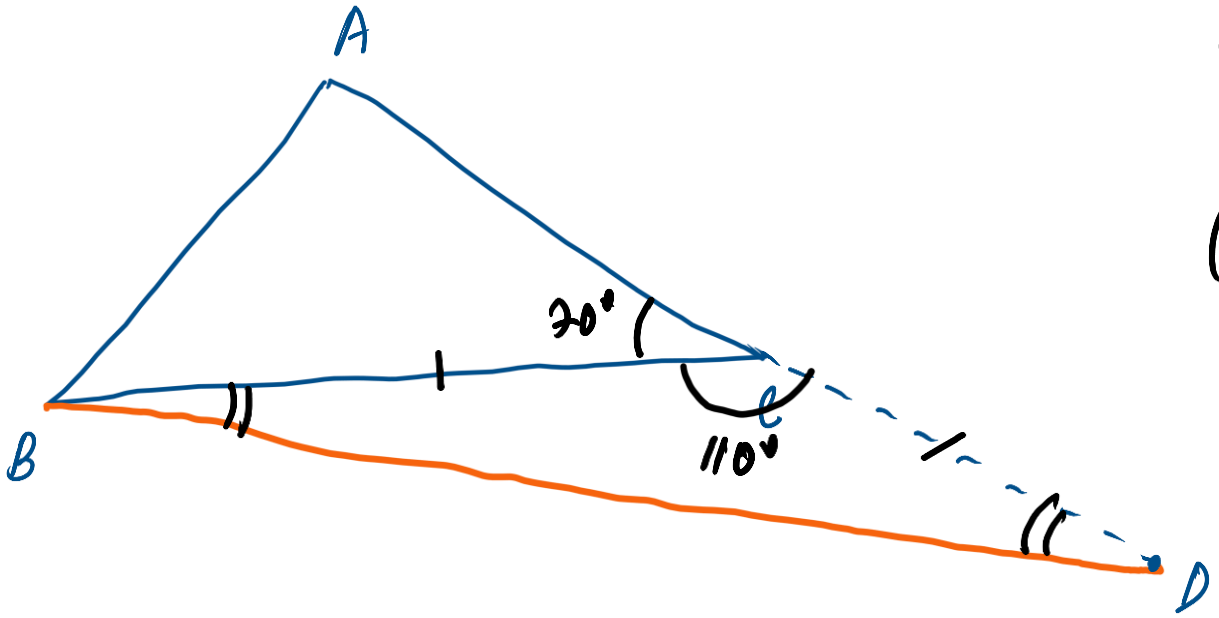
(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Ans: (b)

Q) The side AC of a ΔABC is produced to D such that $BC = CD$. If ΔACB is $70°$, then what is ΔADB equal to?

$\angle ACB$ $\angle ADB$,

(a) $35°$ (b) $45°$
(c) $70°$ (d) $110°$



$\frac{70°}{2} = 35°$

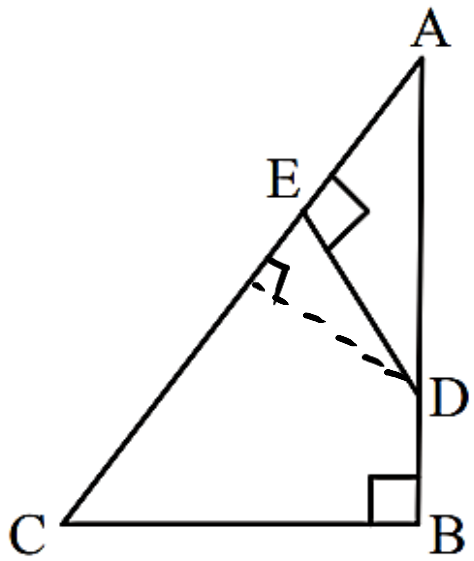
(angles opposite to equal sides are equal)

Q) The side AC of a ΔABC is produced to D such that $BC = CD$. If ΔACB is $70°$, then what is ΔADB equal to?

(a) $35°$
(b) $45°$
(c) $70°$
(d) $110°$

Ans: (a)

Q) In the figure given below $\angle ABC = \angle AED = 90^\circ$.
Consider the following statements
I. ABC and ADE are similar triangles. ✓
II. The four points B, C, E and D may lie on a circle. ✗
Which of the above statements is/are correct?



(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

$\angle AED = \angle ABC = 90^\circ$ } AA
$\angle A = \angle A$ } Similarity

Q) In the figure given below $\angle ABC = \angle AED = 90^\circ$.
Consider the following statements
I. ABC and ADE are similar triangles.
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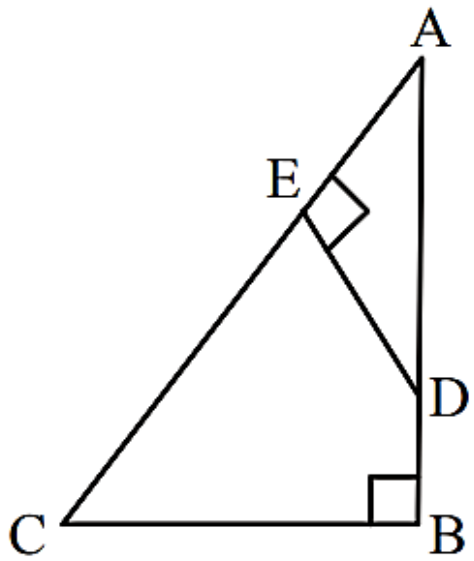


(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Ans: (a)

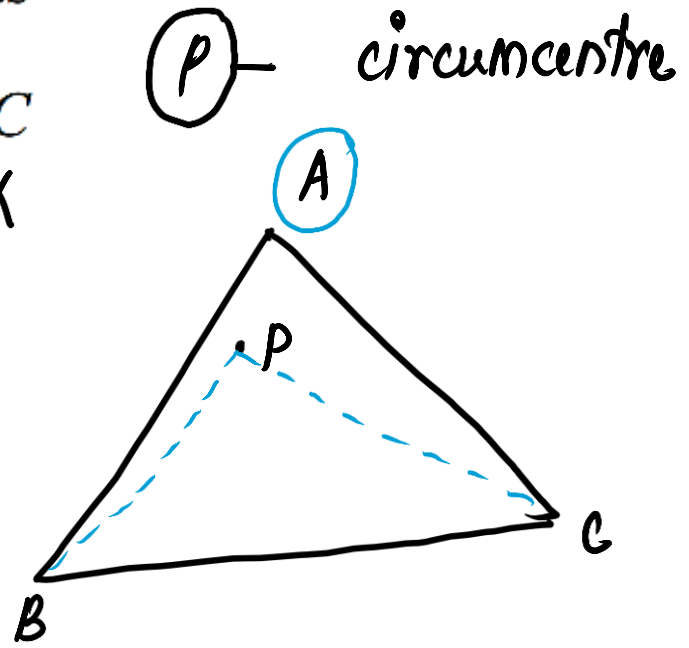
Q) Consider the following statement in respect of an equilateral ΔABC.

I. There is a point P inside the ΔABC such that each of its sides subtends an angle of 120° at P. ✓

II. There is a point P inside the ΔABC such that the ΔPBC is obtuse angled and A is the orthocentre of ΔPBC. ✗

Which of the above statements is/are correct?

(a) Only I ✓
(b) Only II
(c) Both I and II
(d) Neither I nor II



Q) Consider the following statement in respect of an equilateral ΔABC.

I. There is a point P inside the ΔABC such that each of its sides subtends an angle of 120° at P.

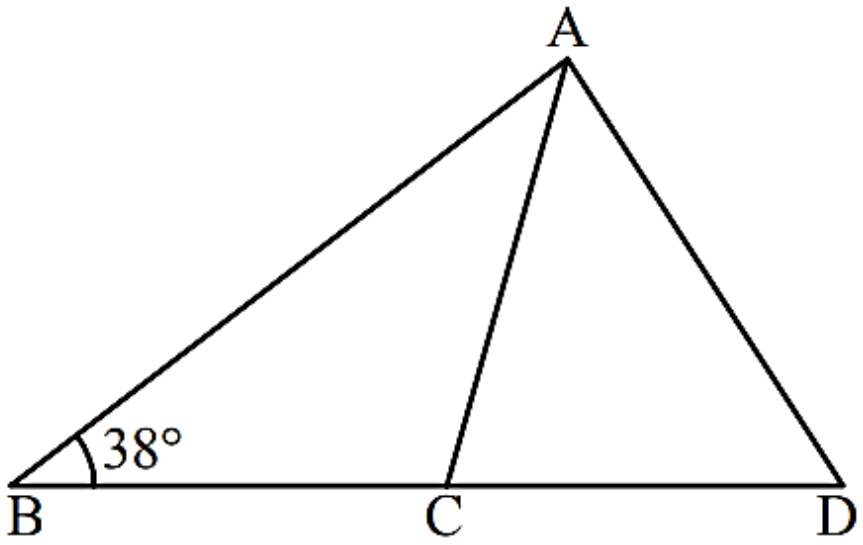
II. There is a point P inside the ΔABC such that the ΔPBC is obtuse angled and A is the orthocentre of ΔPBC.

Which of the above statements is/are correct?

(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Ans: (a)

Q)



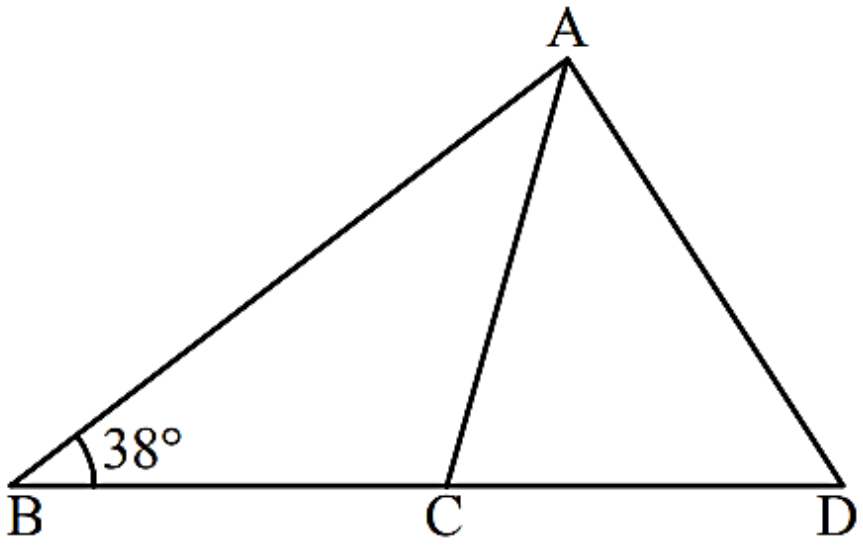
In the figure given, $\angle B = 38°$, $AC = BC$ and $AD = CD$. What is $\angle D$ equal to?

(a) 26° (b) 28°

(c) 38° (d) 52°

HW

Q)

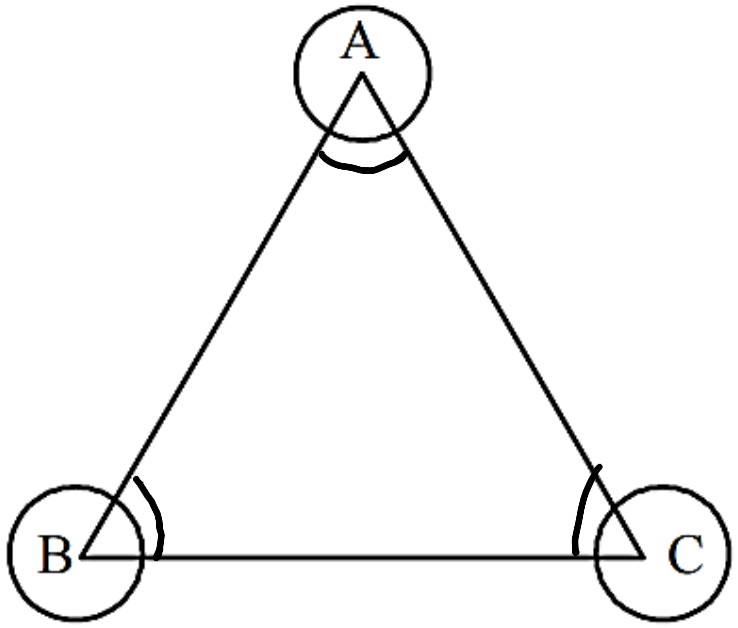


In the figure given, $\angle B = 38°$, $AC = BC$ and $AD = CD$. What is $\angle D$ equal to?

(a) 26°
(b) 28°
(c) 38°
(d) 52°

Ans: (b)

Q) In the figure given below, what is the sum of the angles formed around A, B, C except the angles of the ΔABC?

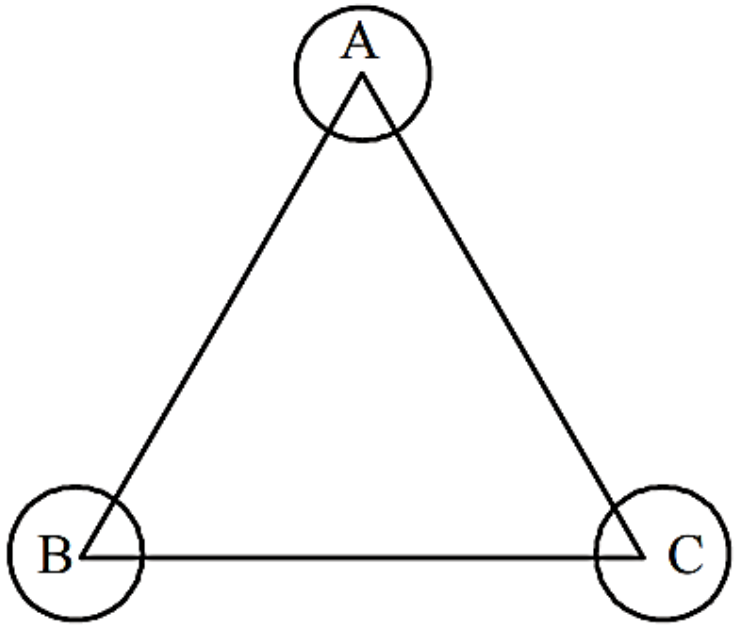


(a) 360°
(b) 720°
(c) 900°
(d) 1000°

$360^\circ + 360^\circ + 360^\circ = 1080^\circ$

$1080^\circ - 180^\circ = 900^\circ$

Q) In the figure given below, what is the sum of the angles formed around A, B, C except the angles of the ΔABC?



(a) 360°
(b) 720°
(c) 900°
(d) 1000°

Ans: (c)

Q) Consider the following statements

I. If the diagonals of a parallelogram $ABCD$ are perpendicular, then $ABCD$ may be a rhombus.

II. If the diagonals of a quadrilateral $ABCD$ are equal and perpendicular, then $ABCD$ is a square.

Which of the statements given above is/are correct?

(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

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I. If the diagonals of a parallelogram $ABCD$ are perpendicular, then $ABCD$ may be a rhombus.

II. If the diagonals of a quadrilateral $ABCD$ are equal and perpendicular, then $ABCD$ is a square.

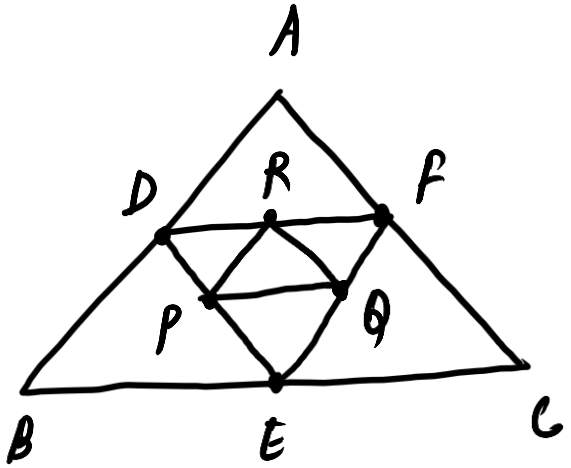
Which of the statements given above is/are correct?

(a) Only I
(b) Only II
(c) Both I and II
(d) Neither I nor II

Ans: (c)

Q) *A* ΔDEF is formed by joining the mid-points of the sides of ΔABC. Similarly, a ΔPQR is formed by joining the mid-points of the sides of the ΔDEF. If the sides of the ΔPQR are of lengths 1, 2 and 3 units, what is the perimeter of the ΔABC?

(a) 18 units
(b) 24 units
(c) 48 units
(d) Cannot be determined



$PQ + QR + PR = 1 + 2 + 3 = 6$

(4) $\times 6 = 24$ units

Q) $A\ \Delta DEF$ is formed by joining the mid-points of the sides of ΔABC. Similarly, a ΔPQR is formed by joining the mid-points of the sides of the ΔDEF. If the sides of the ΔPQR are of lengths 1, 2 and 3 units, what is the perimeter of the ΔABC?

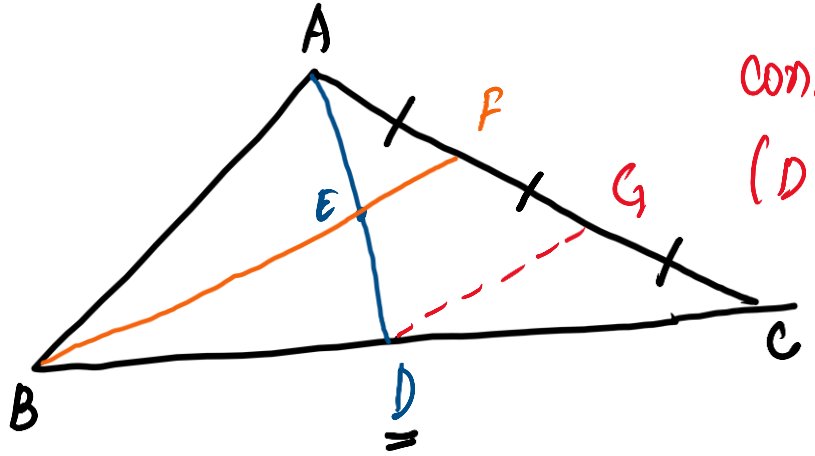
(a) 18 units
(b) 24 units
(c) 48 units
(d) Cannot be determined

Ans: (b)

Q) In a ΔABC, AD is the median through A and E is the mid–point of AD and BE produced meets AC at F. Then, AF is equal to

(a) $AC/5$ (b) $AC/4$

(c) $AC/3$ (d) $AC/2$



constructing, (DG ∥ EF)

△ADG, EF ∥ DG

$\frac{AE}{ED} = \frac{AF}{FG} = \frac{1}{1}$

AF = FG

AF = GF = CG

△BFC, DG ∥ BF

$\frac{CD}{DB} = \frac{CG}{GF} = \frac{1}{1} \Rightarrow$ CG = GF

Q) In a ΔABC, AD is the median through A and E is the mid–point of AD and BE produced meets AC at F. Then, AF is equal to

(a) $AC/5$ (b) $AC/4$

(c) $AC/3$ (d) $AC/2$

Ans: (c)

Q) The angles of a triangle are in the ratio 4 : 1 : 1. Then the ratio of the largest side to the perimeter is

(a) $\frac{2}{3}$

(b) $\frac{1}{2+\sqrt{3}}$

(c) $\frac{\sqrt{3}}{2+\sqrt{3}}$ ✓

(d) $\frac{2}{1+\sqrt{3}}$

$\frac{4}{6} \times 180^{30} = 120^\circ$

30°

30°

Sine formula,

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = k$$

$$\frac{a}{\sin 120^\circ} = \frac{b}{\sin 30^\circ} = \frac{c}{\sin 30^\circ} = k$$

$a = k\sin 120^\circ = \underline{\sqrt{3}k/2}$

$b = k\sin 30^\circ = \underline{k/2}$

$c = k\sin 30^\circ = \underline{k/2}$

Largest side = a

$$\frac{a}{a+b+c} = \frac{\frac{\sqrt{3}}{2}k}{\frac{\sqrt{3}}{2}k + \frac{1}{2}k + \frac{1}{2}k} = \frac{\sqrt{3}}{2+\sqrt{3}}$$

Q) The angles of a triangle are in the ratio 4 : 1 : 1. Then the ratio of the largest side to the perimeter is

(a) $\frac{2}{3}$

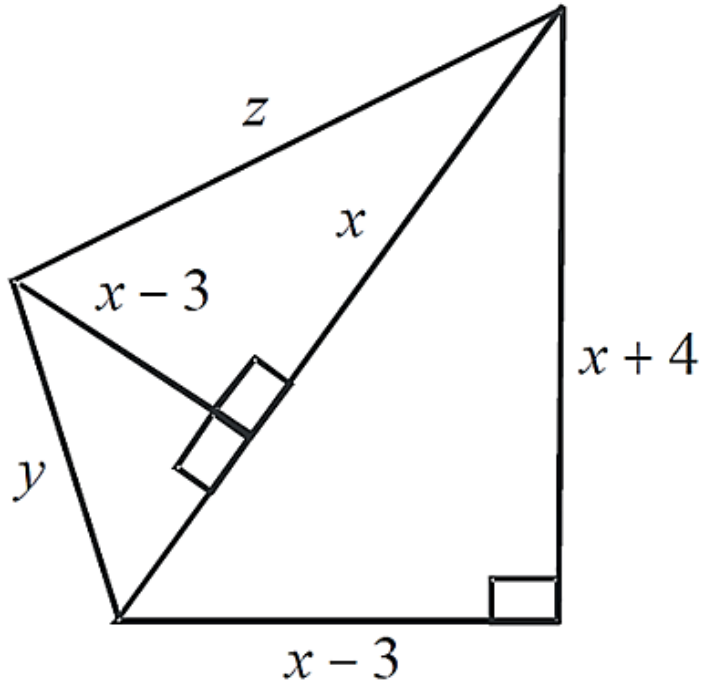
(b) $\frac{1}{2+\sqrt{3}}$

(c) $\frac{\sqrt{3}}{2+\sqrt{3}}$

(d) $\frac{2}{1+\sqrt{3}}$

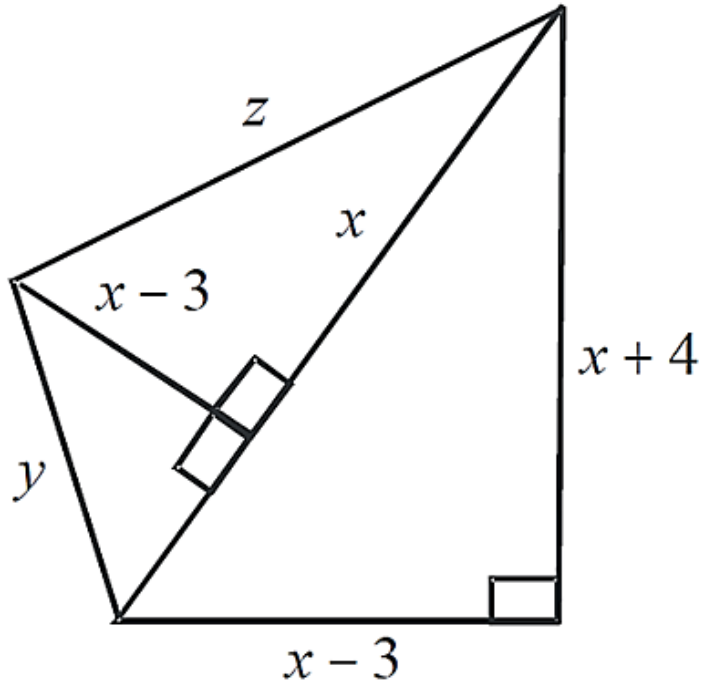
Ans: (c)

Q) Based on the figure below, what is the value of x, if $y = 10$



(a) 10
(b) 11
(c) 12
(d) None of these

Q) Based on the figure below, what is the value of x, if $y = 10$



(a) 10
(b) 11
(c) 12
(d) None of these

Ans: (b)

Q) A closed polygon has six sides and one of its angles is 30° greater than each of the other five equal angles. What is the value of one of the equal angles?

(a) 55° (b) 115°

(c) 150° (d) 175°

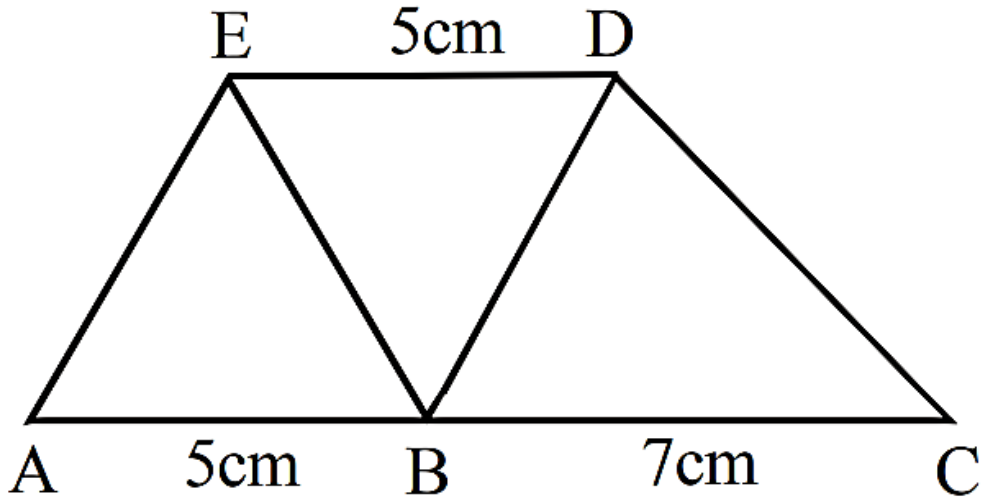
Q) A closed polygon has six sides and one of its angles is 30° greater than each of the other five equal angles. What is the value of one of the equal angles?

(a) 55° (b) 115°

(c) 150° (d) 175°

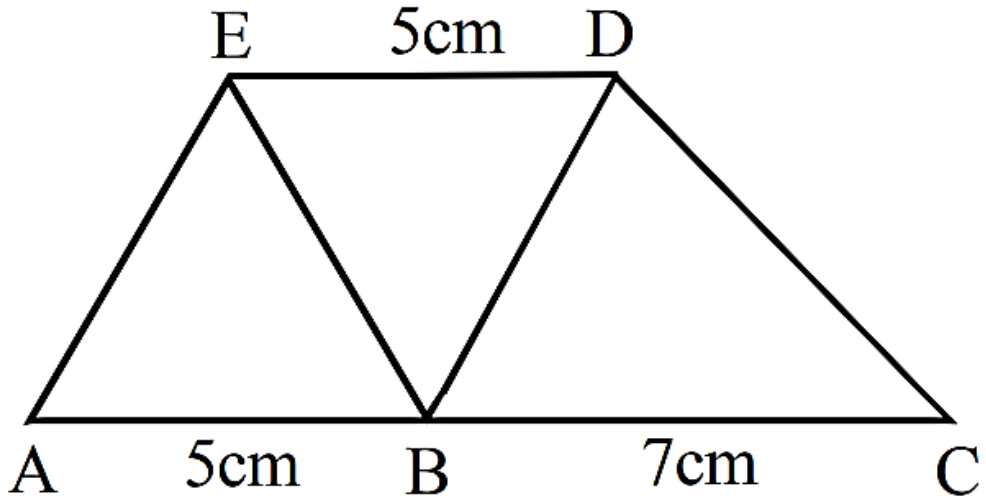
Ans: (b)

Q) In the figure given below, AC is parallel to ED and AB = DE = 5 cm and BC = 7 cm. What is the area ABDE : area BDE : area BCD equal to ?



(a) 10 : 5 : 7
(b) 8 : 4 : 7
(c) 2 : 1 : 2
(d) 8 : 4 : 5

Q) In the figure given below, AC is parallel to ED and AB = DE = 5 cm and BC = 7 cm. What is the area ABDE : area BDE : area BCD equal to ?



(a) 10 : 5 : 7
(b) 8 : 4 : 7
(c) 2 : 1 : 2
(d) 8 : 4 : 5

Ans: (a)

Q) Let ABCD be a rectangle. Let P, Q, R, S be the mid-points of sides AB, BC, CD, DA respectively. Then the quadrilateral PQRS is a

(a) Square
(b) Rectangle, but need not be a square
(c) Rhombus, but need not be a square
(d) Parallelogram, but need not be a rhombus

Q) Let ABCD be a rectangle. Let P, Q, R, S be the mid-points of sides AB, BC, CD, DA respectively. Then the quadrilateral PQRS is a

(a) Square
(b) Rectangle, but need not be a square
(c) Rhombus, but need not be a square
(d) Parallelogram, but need not be a rhombus

Ans: (c)

Q) If a quadrilateral has an inscribed circle, then the sum of a pair of opposite sides equals

(a) Half the sum of the diagonals
(b) Sum of the other pair of opposite sides
(c) Sum of two adjacent sides
(d) None of the above

Q) If a quadrilateral has an inscribed circle, then the sum of a pair of opposite sides equals

(a) Half the sum of the diagonals
(b) Sum of the other pair of opposite sides
(c) Sum of two adjacent sides
(d) None of the above

Ans: (b)

Q) A square is inscribed in a right-angled triangle with legs p and q, and has a common right angle with the triangle. The diagonal of the square is given by

(a) $\frac{pq}{p+2q}$

(b) $\frac{pq}{2p+q}$

(c) $\frac{\sqrt{2}pq}{p+q}$

(d) $\frac{2pq}{p+q}$

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(a) $\frac{pq}{p+2q}$

(b) $\frac{pq}{2p+q}$

(c) $\frac{\sqrt{2}pq}{p+q}$

(d) $\frac{2pq}{p+q}$

Ans: (c)

Q) A rhombus is formed by joining midpoints of the sides of a rectangle in the suitable order. If the area of the rhombus is 2 square units, then the area of the rectangle is

(a) $2\sqrt{2}$ square units (b) 4 square units

(c) $4\sqrt{2}$ square units (d) 8 square units

Q) A rhombus is formed by joining midpoints of the sides of a rectangle in the suitable order. If the area of the rhombus is 2 square units, then the area of the rectangle is

(a) $2\sqrt{2}$ square units (b) 4 square units

(c) $4\sqrt{2}$ square units (d) 8 square units

Ans: (b)

Q) ABCD is a parallelogram with AB and AD as adjacent sides. If $\angle A = 60°$ and $AB = 2AD$, then the diagonal BD will be equal to

(a) $\sqrt{2}AD$

(b) $\sqrt{3}AD$

(c) $2AD$

(d) $3AD$

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(a) $\sqrt{2}AD$

(b) $\sqrt{3}AD$

(c) $2AD$

(d) $3AD$

Ans: (b)

Q) In the figure given below, PQRS is a parallelogram. PA bisects angle P and SA bisects angle S. What is angle PAS equal to ?

(a) 60°
(b) 75°
(c) 90°
(d) 100°

Q) In the figure given below, PQRS is a parallelogram. PA bisects angle P and SA bisects angle S. What is angle PAS equal to ?

(a) 60°
(b) 75°
(c) 90°
(d) 100°

Ans: (c)

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