

# CDS 1 2024

SSBCrack  
EXAMS

LIVE

# MATHS

## GEOMETRY

CLASS 3

NAVJYOTI SIR





## 18 June 2024 Live Classes Schedule

8:00AM	18 JUNE 2024 DAILY CURRENT AFFAIRS	RUBY MA'AM
9:00AM	18 JUNE 2024 DAILY DEFENCE UPDATES	DIVYANSHU SIR

### AFCAT 2 2024 LIVE CLASSES

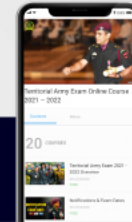
2:30PM	STATIC GK - SCIENTIFIC INVENTIONS	DIVYANSHU SIR
4:00PM	MATHS - GEOMETRY - CLASS 3	NAVJYOTI SIR

### NDA 2 2024 LIVE CLASSES

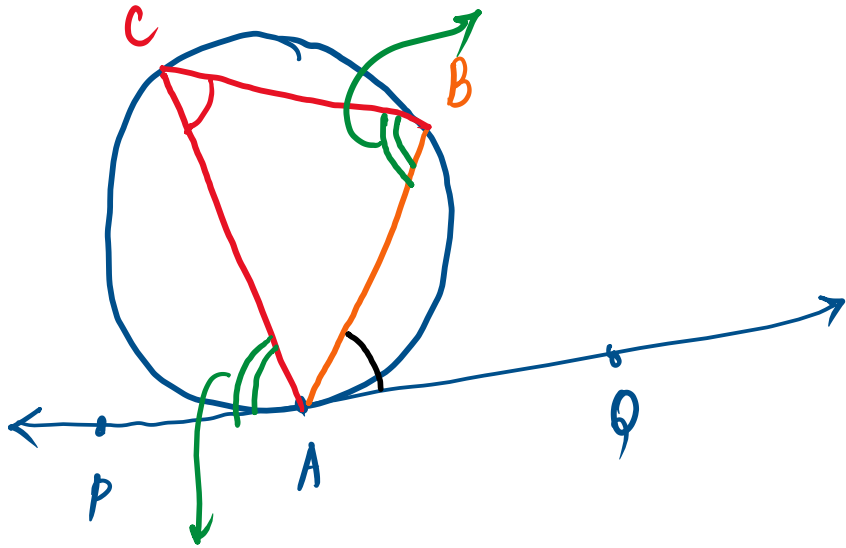
11:30AM	GK - HUMAN GEOGRAPHY	RUBY MA'AM
2:30PM	GS - CHEMISTRY - CLASS 7	SHIVANGI MA'AM
6:30PM	MATHS - MATRICES & DETERMINANTS - CLASS 3	NAVJYOTI SIR

### CDS 2 2024 LIVE CLASSES

11:30AM	GK - HUMAN GEOGRAPHY	RUBY MA'AM
2:30PM	GS - CHEMISTRY - CLASS 7	SHIVANGI MA'AM
4:00PM	MATHS - GEOMETRY - CLASS 3	NAVJYOTI SIR



# ALTERNATE SEGMENT THEOREM



$$\angle QAB = \angle ACB \text{ (with AB as chord)}$$

with AC as chord,

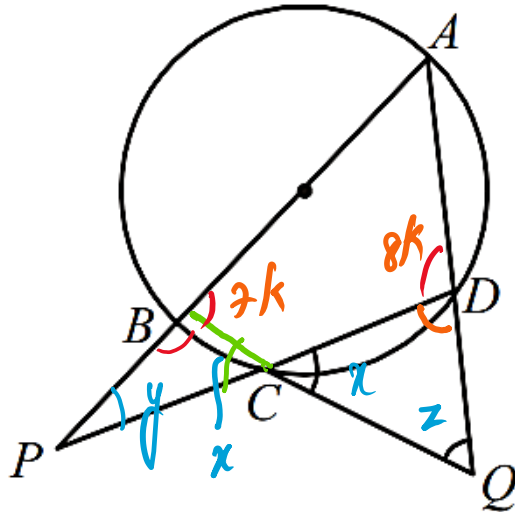
$$\angle PAC = \angle CBA$$

Q) In the given figure, if  $\frac{x}{3} = \frac{y}{4} = \frac{z}{5}$ , where  $\angle DCQ = x$ ,  $\angle BPC = y$  and  $\angle DQC = z$ , then what are the values of  $x$ ,  $y$  and  $z$ , respectively?

$$\frac{x}{3} = \frac{y}{4} = \frac{z}{5} = k$$

$$x = 3k ; y = 4k \quad z = 5k$$

$\angle BCP = x$   
(vertically opposite angles)



$$\angle CDQ \rightarrow 180^\circ - (x+z) = 180^\circ - 8k$$

$$\begin{aligned} \triangle CBP, \\ \angle CBP &= 180^\circ - (x+y) \\ &= 180^\circ - 7k \end{aligned}$$

$$\angle ABC + \angle CBP = 180^\circ$$

$$\angle ABC + 180^\circ - 7k = 180^\circ$$

$$\angle ABC = 7k \quad \checkmark$$

- (a)  $33^\circ, 44^\circ$  and  $55^\circ$   
(c)  $39^\circ, 52^\circ$  and  $65^\circ$

- (b)  $36^\circ, 48^\circ$  and  $60^\circ$   
(d)  $42^\circ, 56^\circ$  and  $70^\circ$

$\angle ABC + \angle ADC = 180^\circ$  (As ABCD is a cyclic quadrilateral)

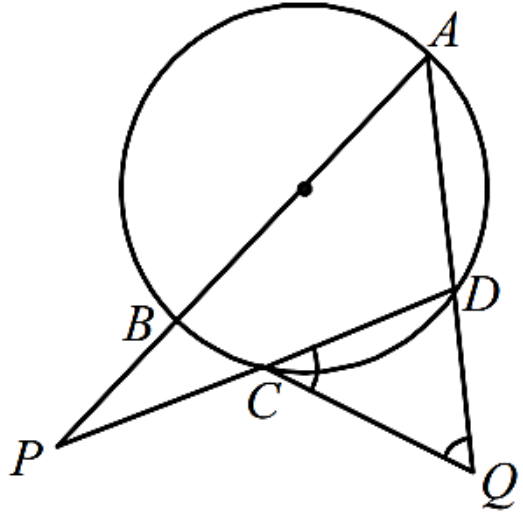
$$7k + 8k = 180^\circ$$

$$15k = 180^\circ$$

$$k = \frac{180}{15} = \underline{12^\circ}$$

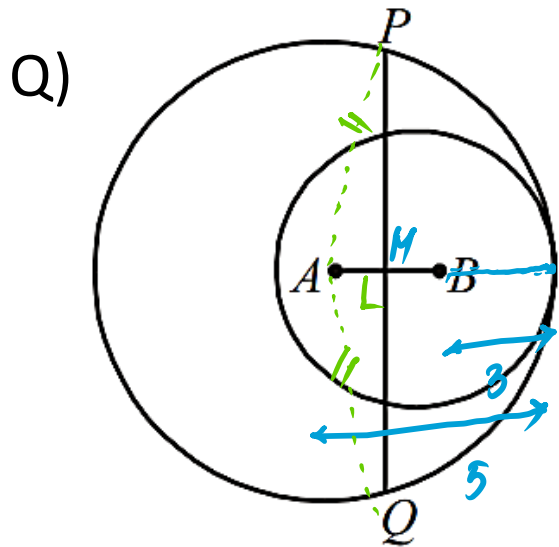
$$\left. \begin{array}{l} x = 3k = 36^\circ \\ y = 4k = 48^\circ \\ z = 5k = 60^\circ \end{array} \right\}$$

Q) In the given figure, if  $\frac{x}{3} = \frac{y}{4} = \frac{z}{5}$ , where  $\angle DCQ = x$ ,  $\angle BPC = y$  and  $\angle DQC = z$ , then what are the values of  $x$ ,  $y$  and  $z$ , respectively?



- (a)  $33^\circ, 44^\circ$  and  $55^\circ$
- (b)  $36^\circ, 48^\circ$  and  $60^\circ$
- (c)  $39^\circ, 52^\circ$  and  $65^\circ$
- (d)  $42^\circ, 56^\circ$  and  $70^\circ$

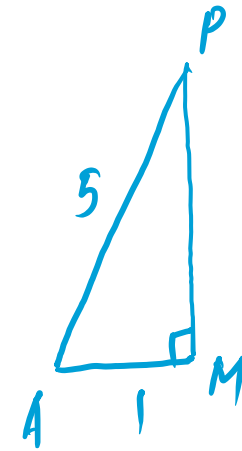
**Ans: (b)**



$$AB = 5 - 3 = 2 \text{ units}$$

Two circles with centres  $A$  and  $B$  touch each other internally, as shown in the figure given above. Their radii are 5 and 3 units, respectively. Perpendicular bisector of  $AB$  meets the bigger circle in  $P$  and  $Q$ . What is the length of  $PQ$ ?

- (a)  $2\sqrt{6}$                       (b)  $\sqrt{34}$   
 (c)  $4\sqrt{6}$                       (d)  $6\sqrt{2}$

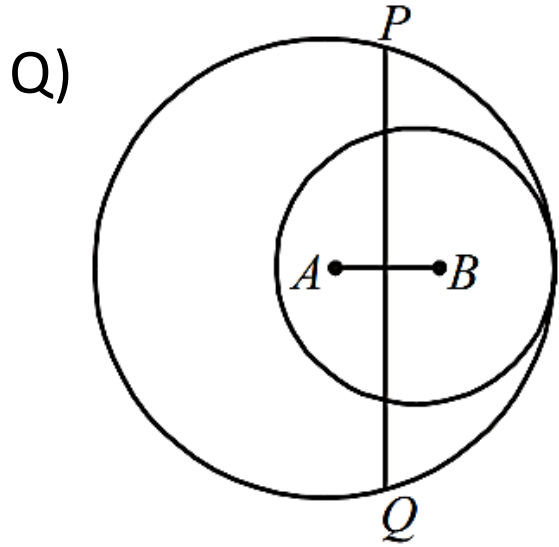


$$PM^2 = 5^2 - 1^2$$

$$PM = \sqrt{24} = 2\sqrt{6}$$

$\triangle AMP \cong \triangle AMQ$  (by RHS congruence)  
 $PM = QM$

$$PQ = 2PM = 2 \times 2\sqrt{6} = 4\sqrt{6} \text{ units}$$



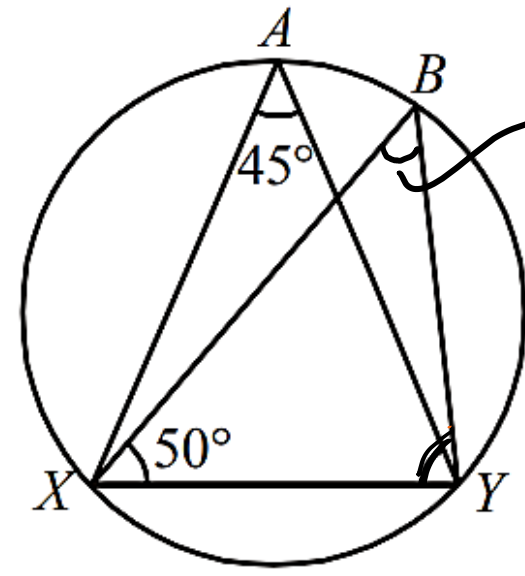
Two circles with centres  $A$  and  $B$  touch each other internally, as shown in the figure given above. Their radii are 5 and 3 units, respectively. Perpendicular bisector of  $AB$  meets the bigger circle in  $P$  and  $Q$ . What is the length of  $PQ$ ?

- (a)  $2\sqrt{6}$                       (b)  $\sqrt{34}$   
(c)  $4\sqrt{6}$                         (d)  $6\sqrt{2}$

**Ans: (c)**



Q)



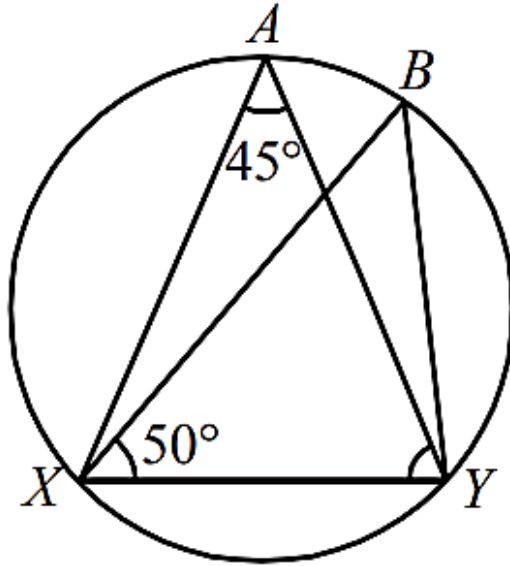
(Angles in same segment are equal)

$\Delta$  XBY - angle sum,  
 $180^\circ - 95^\circ = \underline{85^\circ}$

In the figure given above, what is  $\angle BYX$  equal to?

- (a)  $85^\circ$
- (b)  $50^\circ$
- (c)  $45^\circ$
- (d)  $90^\circ$

Q)

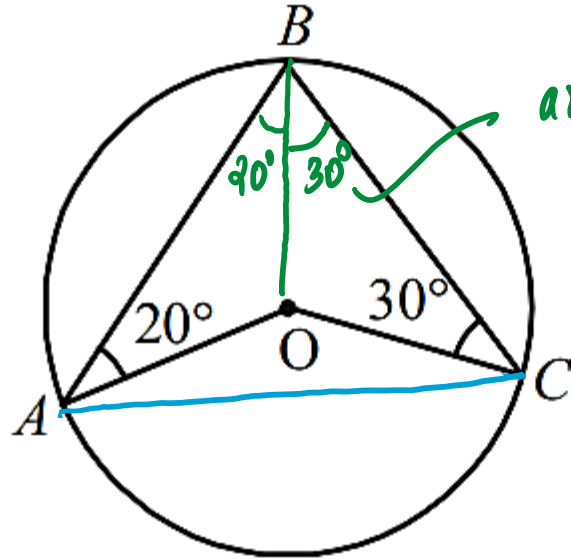


In the figure given above, what is  $\angle BYX$  equal to?

- (a)  $85^\circ$                       (b)  $50^\circ$   
(c)  $45^\circ$                       (d)  $90^\circ$

**Ans: (a)**

Q)



angle opposite to equal sides

$$\angle ABC = 50^\circ$$

$$\angle AOC = 2 \times 50^\circ = \underline{100^\circ}$$

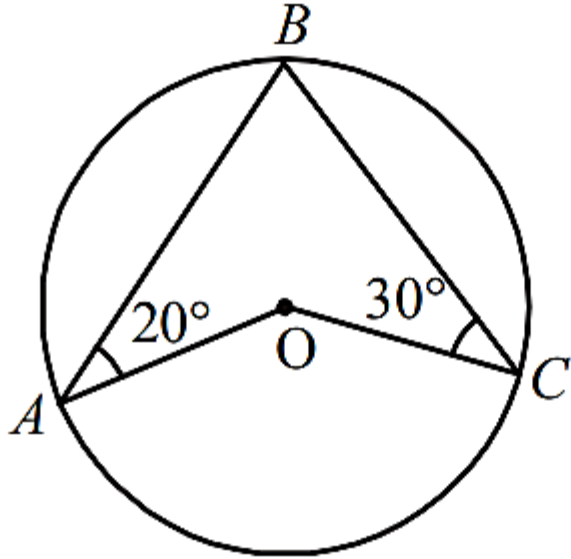
} angle subtended  
at centre by  
chord AC.

In the figure given above, O is the centre of the circle.  
What is  $\angle AOC$ ?

- (a)  $160^\circ$   
(c)  $120^\circ$

- (b)  $150^\circ$   
(d)  $100^\circ$

Q)

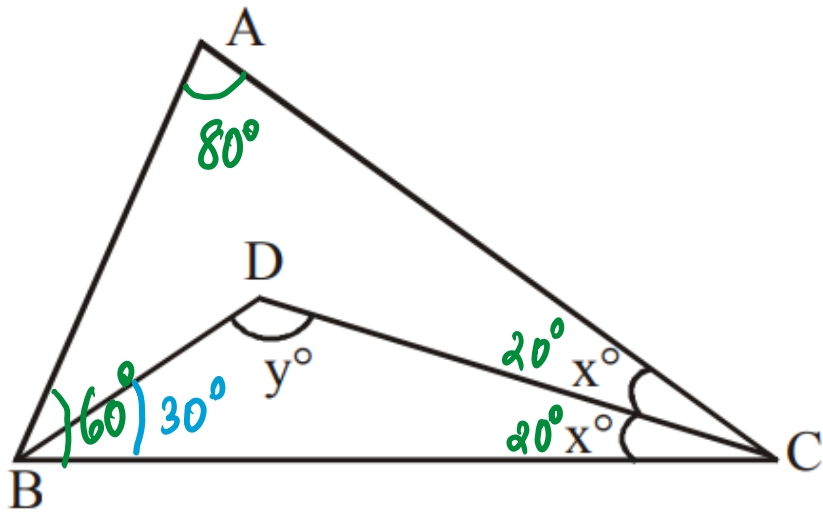


In the figure given above,  $O$  is the centre of the circle.  
What is  $\angle AOC$ ?

- (a)  $160^\circ$                       (b)  $150^\circ$   
(c)  $120^\circ$                       (d)  $100^\circ$

**Ans: (d)**

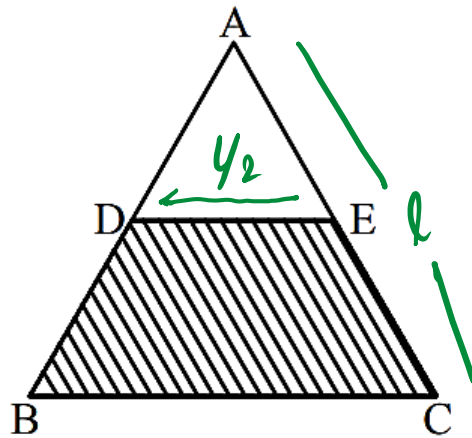
Q) In the figure given below,  $\angle A = 80^\circ$  and  $\angle ABC = 60^\circ$ . BD and CD bisect angles B and C respectively. What are the values of x and y respectively ?



$$y = 180^\circ - (50^\circ) = \underline{130^\circ} \quad (\text{Angle sum in } \triangle BDC)$$

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

Q) In the equilateral triangle ABC given below, AD = DB and AE = EC. If  $l$  is the length of a side of the triangle, then what is the area of the shaded region?



D and E are mid-points,  
 $DE = \frac{1}{2} BC$ , ( $\triangle ADE \sim \triangle ABC$ ,  
 sides will be in proportion)

side

$$\triangle ADE = \frac{l}{2} ; \triangle ABC = l,$$

$$\text{Area of shaded region} = \text{Area of } \triangle ABC - \text{Area of } \triangle ADE$$

(a)  $\frac{3\sqrt{3} l^2}{16}$

(b)  $\frac{3 l^2}{16}$

(c)  $\frac{3\sqrt{3} l^2}{32}$

(d)  $\frac{3 l^2}{32}$

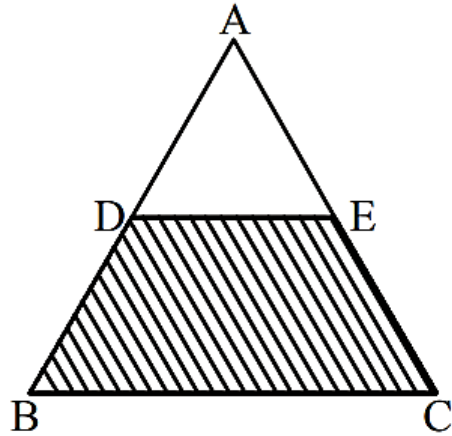
CDS & AFCAT 2 2024 LIVE CLASS - MATHS - PART 3

$$\frac{\sqrt{3}}{4} l^2 - \frac{\sqrt{3}}{4} \left(\frac{l}{2}\right)^2$$

$$\frac{\sqrt{3}}{4} \left( l^2 - \frac{l^2}{4} \right)$$

$$\frac{\sqrt{3}}{4} \left( \frac{3l^2}{4} \right) = \underline{\underline{\frac{3\sqrt{3} l^2}{16}}}$$

Q) In the equilateral triangle ABC given below,  $AD = DB$  and  $AE = EC$ . If  $l$  is the length of a side of the triangle, then what is the area of the shaded region?



(a)  $\frac{3\sqrt{3} l^2}{16}$

(b)  $\frac{3 l^2}{16}$

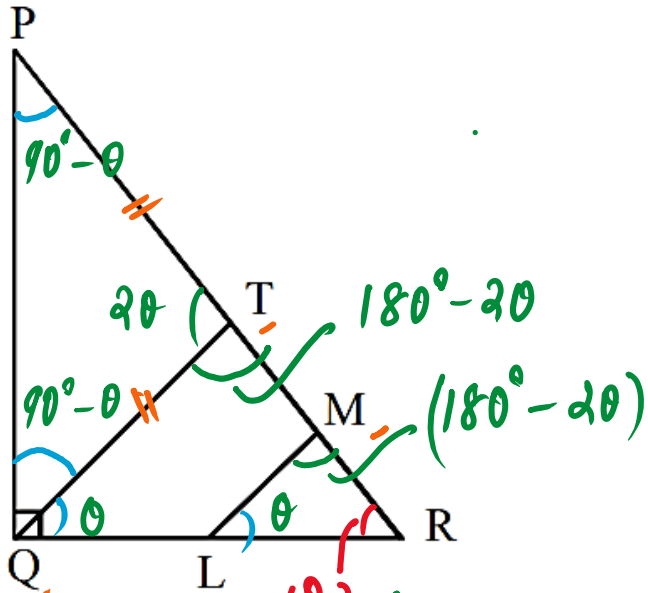
(c)  $\frac{3\sqrt{3} l^2}{32}$

(d)  $\frac{3 l^2}{32}$

**Ans: (a)**



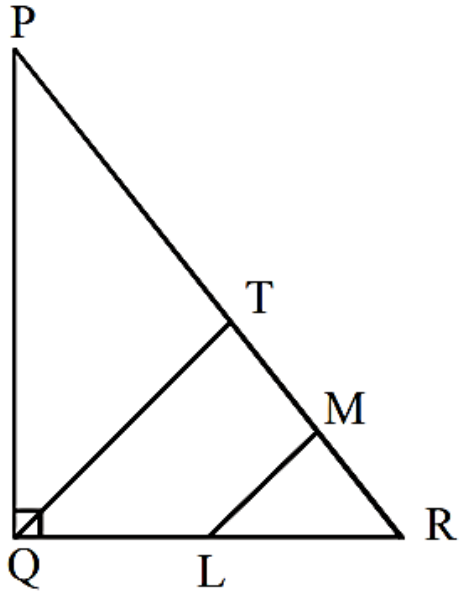
Q) In the figure given below, PQR is a non-isosceles right-angled triangle, right angled at Q. If LM and QT are parallel and  $QT = PT$ , then what is  $\angle RLM$  equal to ?



- (a)  $\angle PQT$  ~~α~~
- (b)  $\angle LRM$  ✓
- (c)  $\angle RML$
- (d)  $\angle QPT$

$\Delta LMR$   
 $\theta + (180^\circ - 2\theta) + (\angle LRM) = 180^\circ$   
 $\angle LRM = \theta$

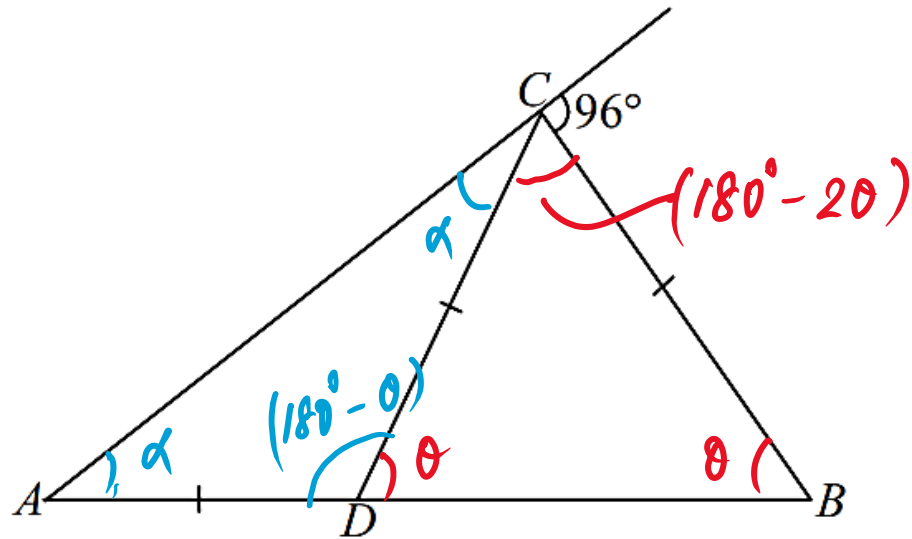
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- |                  |                  |
|------------------|------------------|
| (a) $\angle PQT$ | (b) $\angle LRM$ |
| (c) $\angle RML$ | (d) $\angle QPT$ |

**Ans: (b)**

Q)



$$2\alpha + 180^\circ - \theta = 180^\circ \text{ (Angle sum - } \triangle ADC)$$

$$2\alpha = \theta$$

$$\alpha = \frac{\theta}{2}$$

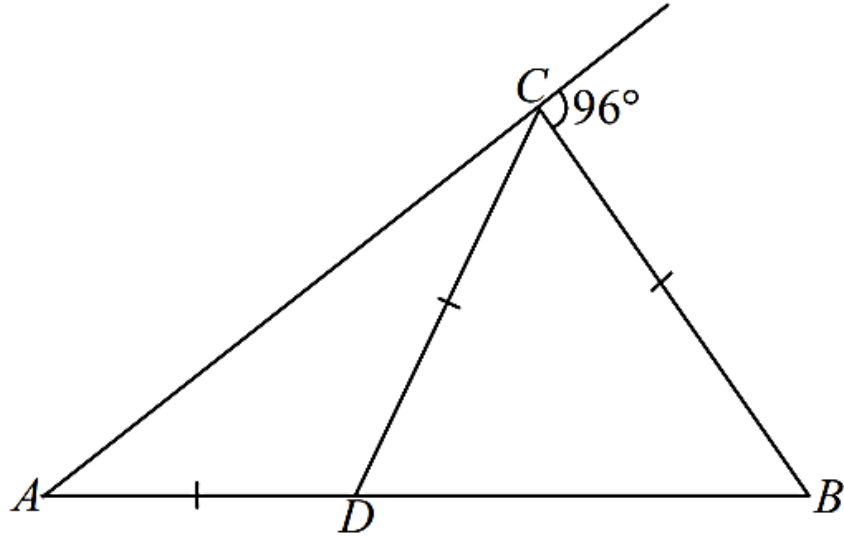
In the figure given above,  $AD = CD = BC$ . What is the value of  $\angle CDB$

- (a)  $32^\circ$
- (b)  $64^\circ$
- (c)  $78^\circ$

$$96^\circ + (180^\circ - 2\theta) + \frac{\theta}{2} = 180^\circ \text{ (Linear pair)}$$

$$96 = 2\theta - \frac{\theta}{2} \Rightarrow \frac{3\theta}{2} = 96 \Rightarrow \theta = \frac{2 \times 96}{3} = 64^\circ$$

Q)



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

- (a)  $32^\circ$
- (b)  $64^\circ$
- (c)  $78^\circ$

**Ans: (b)**

Q) In a triangle  $ABC$  if  $A - B = \frac{\pi}{2}$ , then  $C + 2B$  is equal to

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

(b)  $\frac{3\pi}{4}$

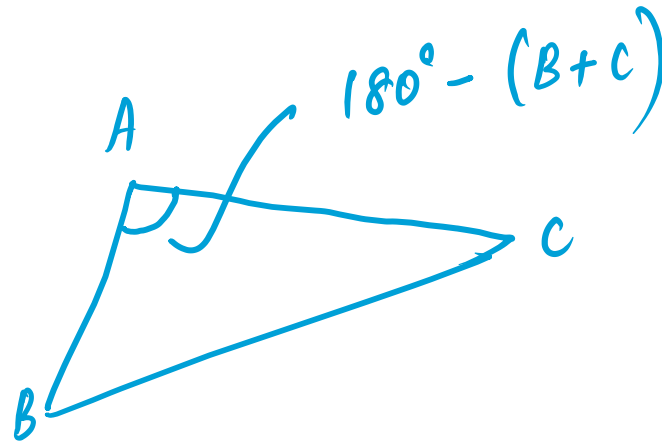
(c)  $\pi$

(d)  $\frac{\pi}{2}$

$$A = \frac{\pi}{2} + B$$

$$180^\circ - (B + C) = \frac{\pi}{2} + B$$

$$\pi - B - C = \frac{\pi}{2} + B \Rightarrow \left\{ 2B + C = \pi - \frac{\pi}{2} = \frac{\pi}{2} \right\}$$



Q) In a triangle  $ABC$  if  $A - B = \frac{\pi}{2}$ , then  $C + 2B$  is equal to

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

(b)  $\frac{3\pi}{4}$

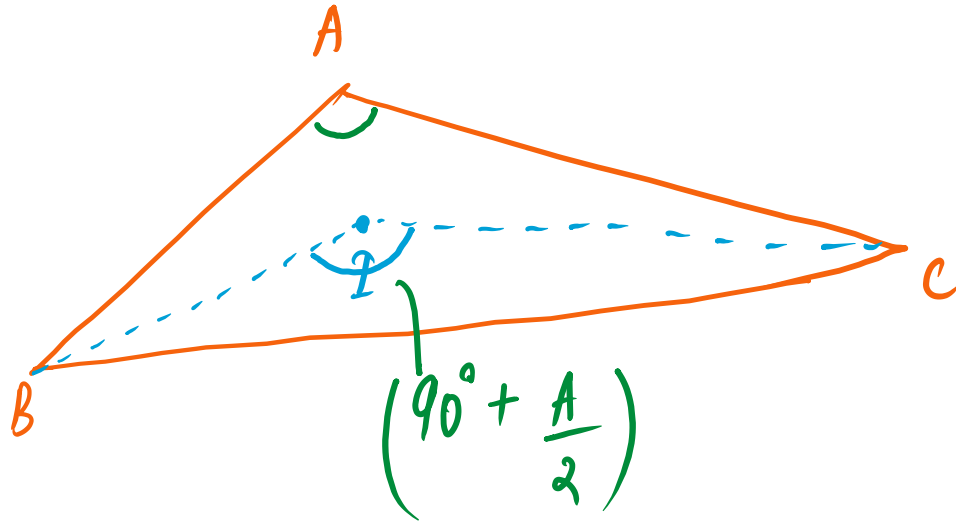
(c)  $\pi$

(d)  $\frac{\pi}{2}$

**Ans: (d)**

Q) If the bisectors  $BI$  and  $CI$  of the angles  $B$  and  $C$  of a  $\triangle ABC$  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)  $90^\circ + A$



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- (a)  $2A$                                       (b)  $90^\circ + \frac{A}{2}$
- (c)  $90^\circ - \frac{A}{2}$                                 (d)  $90^\circ + A$

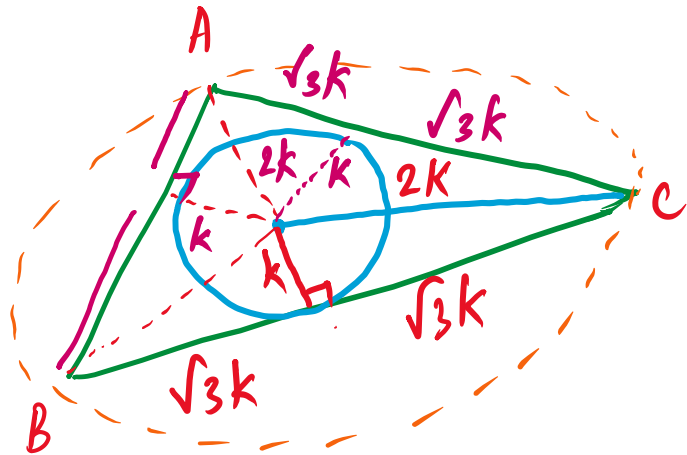
**Ans: (b)**



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

each side of triangle =  $2\sqrt{3}k$



(radius of incircle =  $k$  ; radius of circum circle =  $2k$ )

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

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

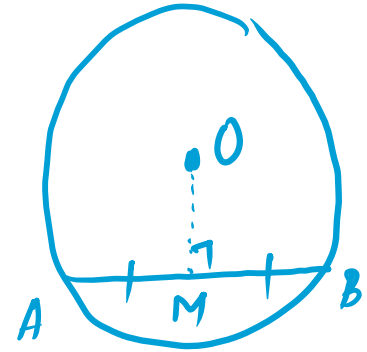
*Which of the statements given above is/are correct?*

(a) Only I

(c) Both I and II

~~(b)~~ (b) Only II

(d) Neither I nor II



$$\begin{aligned} & (AM = BM) \\ & (\angle AMO = \angle BMO \\ & \quad = 90^\circ) \end{aligned}$$

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

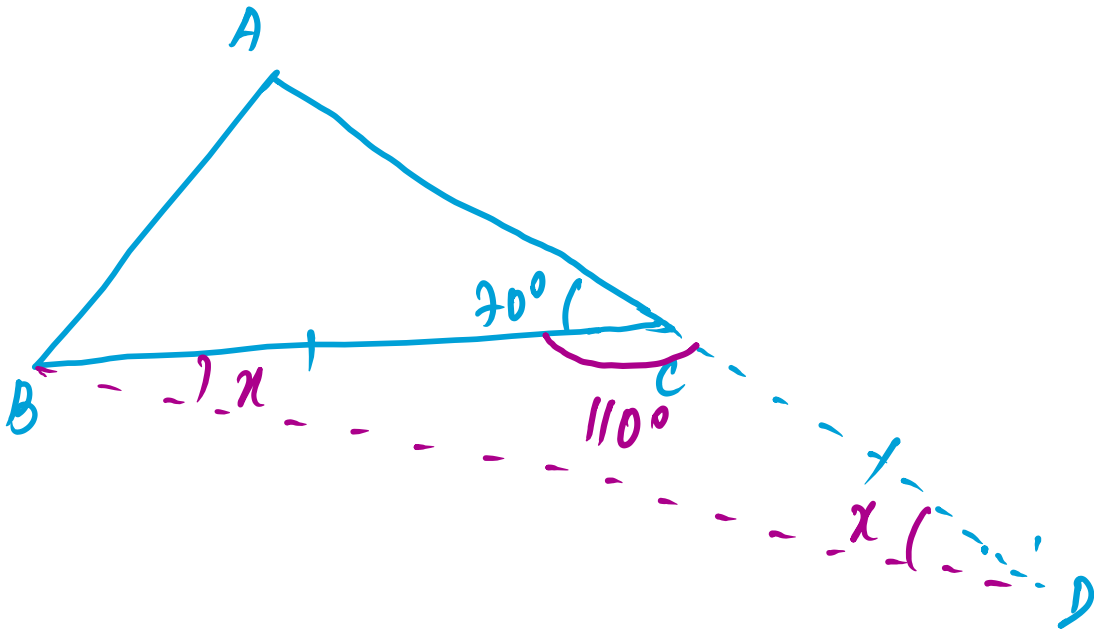
**Ans: (b)**

Q) The side  $AC$  of a  $\triangle ABC$  is produced to  $D$  such that  $BC = CD$ . If  $\angle ACB$  is  $70^\circ$ , then what is  $\angle ADB$  equal to?

- (a)  ~~$35^\circ$~~
- (c)  $70^\circ$

- (b)  $45^\circ$
- (d)  $110^\circ$

angle  $ADB$ ,



$\triangle BCD$ ,

$$2x + 110^\circ = 180^\circ$$

$$\underline{x = 35^\circ}$$

Q) The side  $AC$  of a  $\triangle ABC$  is produced to  $D$  such that  $BC = CD$ . If  $\angle ACB$  is  $70^\circ$ , then what is  $\angle ADB$  equal to?

(a)  $35^\circ$   
(c)  $70^\circ$

(b)  $45^\circ$   
(d)  $110^\circ$

Ans: (a)

Q) Consider the following statement in respect of an equilateral  $\Delta ABC$ .

- I. There is a point  $P$  inside the  $\Delta ABC$  such that each of its sides subtends an angle of  $120^\circ$  at  $P$ .
- II. There is a point  $P$  inside the  $\Delta ABC$  such that the  $\Delta PBC$  is obtuse angled and  $A$  is the orthocentre of  $\Delta PBC$ .

*Which of the above statements is/are correct?*

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

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- I. There is a point  $P$  inside the  $\Delta ABC$  such that each of its sides subtends an angle of  $120^\circ$  at  $P$ .
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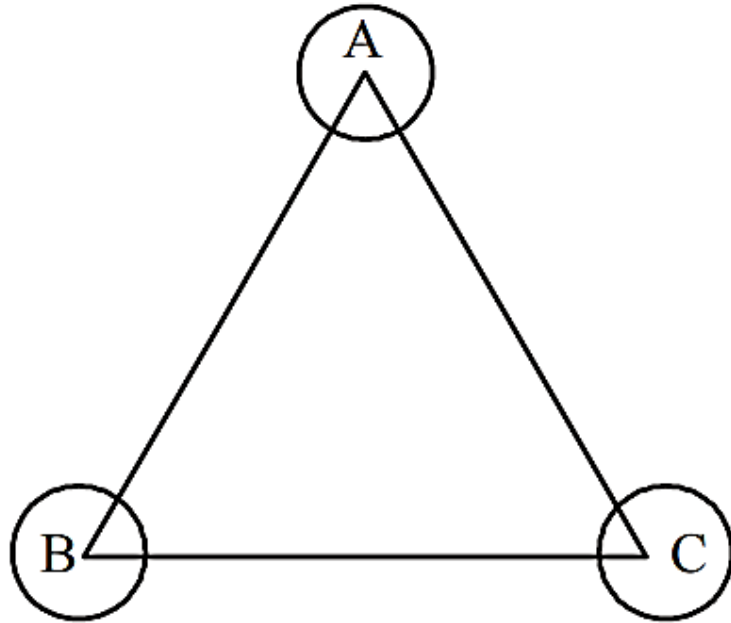
*Which of the above statements is/are correct?*

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

**Ans: (a)**



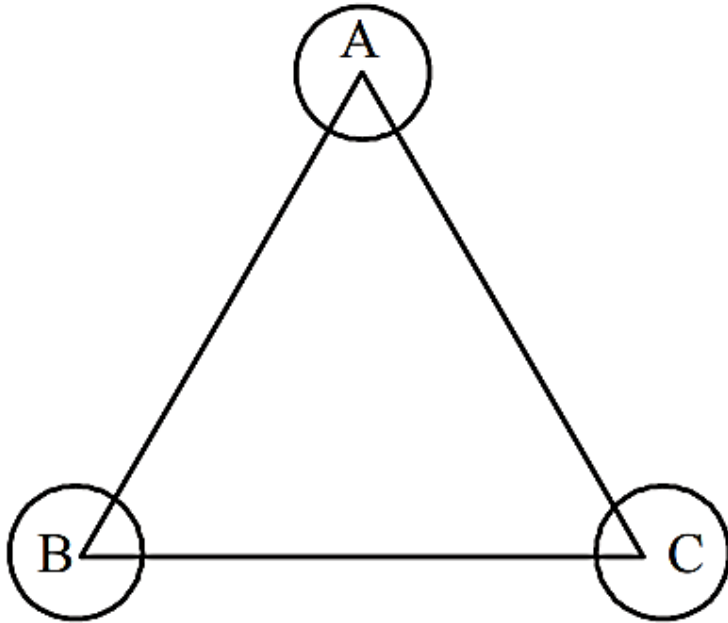
Q) In the figure given below, what is the sum of the angles formed around  $A, B, C$  except the angles of the  $\triangle ABC$ ?



(a)  $360^\circ$   
(c)  $900^\circ$

(b)  $720^\circ$   
(d)  $1000^\circ$

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



(a)  $360^\circ$   
(c)  $900^\circ$

(b)  $720^\circ$   
(d)  $1000^\circ$

**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

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

**Ans: (c)**

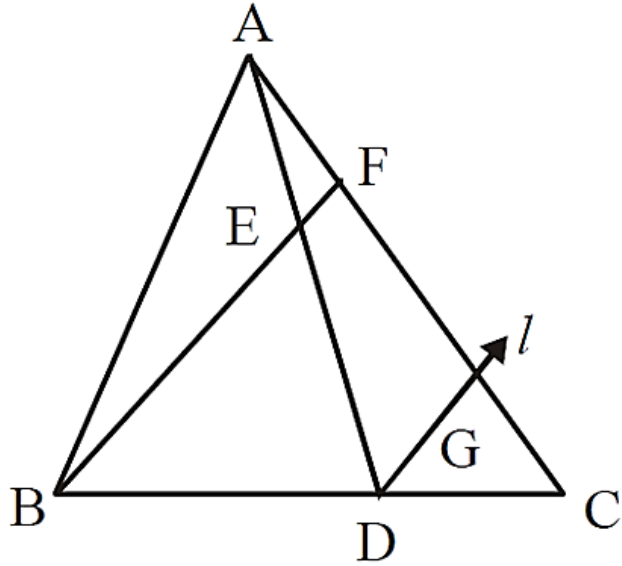
- Q) A  $\triangle DEF$  is formed by joining the mid-points of the sides of  $\triangle ABC$ . Similarly, a  $\triangle PQR$  is formed by joining the mid-points of the sides of the  $\triangle DEF$ . If the sides of the  $\triangle PQR$  are of lengths 1, 2 and 3 units, what is the perimeter of the  $\triangle ABC$ ?
- (a) 18 units                      (b) 24 units  
(c) 48 units                      (d) Cannot be determined

- Q) A  $\triangle DEF$  is formed by joining the mid-points of the sides of  $\triangle ABC$ . Similarly, a  $\triangle PQR$  is formed by joining the mid-points of the sides of the  $\triangle DEF$ . If the sides of the  $\triangle PQR$  are of lengths 1, 2 and 3 units, what is the perimeter of the  $\triangle ABC$ ?
- (a) 18 units                      (b) 24 units  
(c) 48 units                      (d) Cannot be determined

**Ans: (b)**

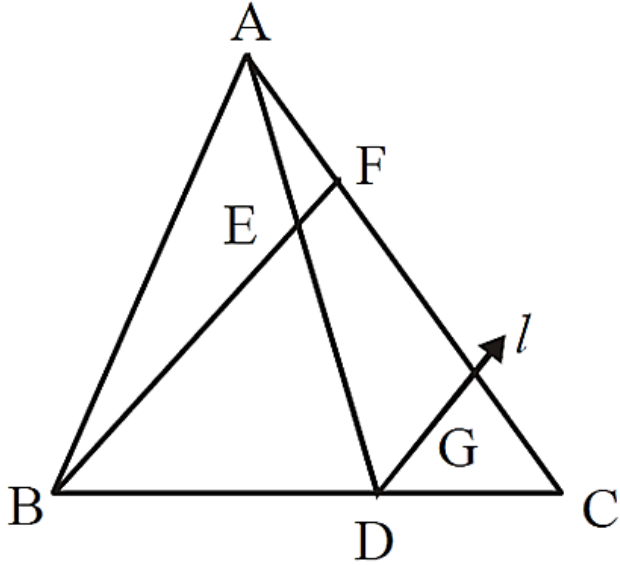
Q) In a  $\Delta ABC$ ,  $AD$  is the median through  $A$  and  $E$  is the mid-point of  $AD$  and  $BE$  produced meets  $AC$  at  $F$ . Then,  $AF$  is equal to

- (a)  $AC/5$                                   (b)  $AC/4$   
(c)  $AC/3$                                   (d)  $AC/2$



Q) In a  $\triangle ABC$ ,  $AD$  is the median through  $A$  and  $E$  is the midpoint 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)  $\frac{2}{1 + \sqrt{3}}$

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)  $\frac{2}{3}$

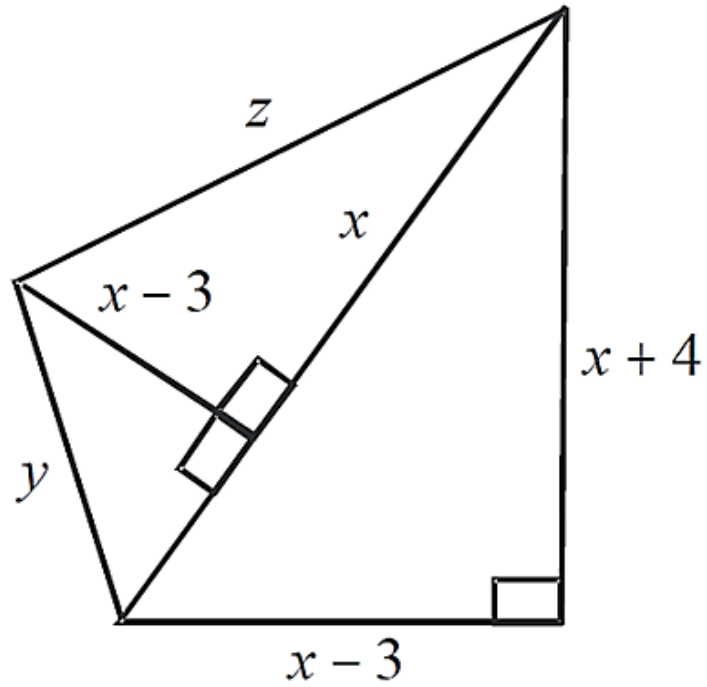
(b)  $\frac{1}{2 + \sqrt{3}}$

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

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

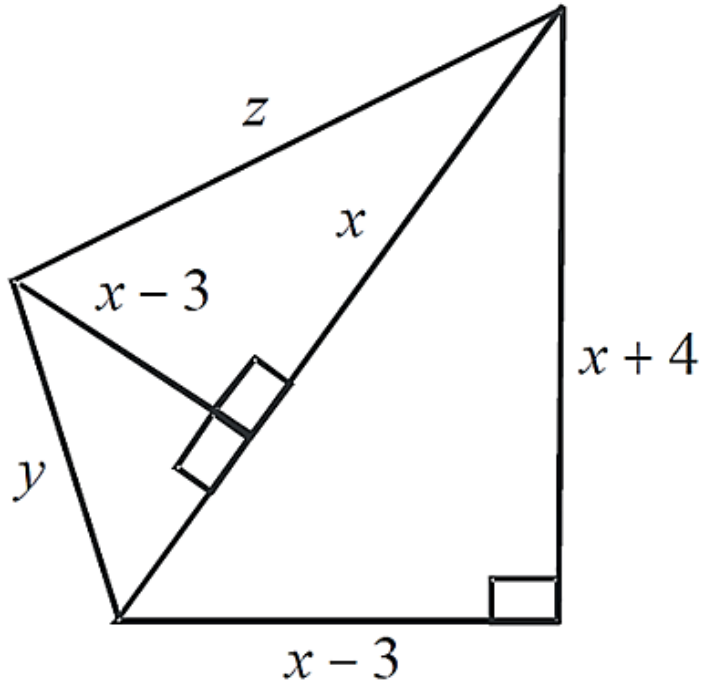
**Ans: (c)**

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  $30^\circ$  greater than each of the other five equal angles. What is the value of one of the equal angles?

(a)  $55^\circ$

(b)  $115^\circ$

(c)  $150^\circ$

(d)  $175^\circ$

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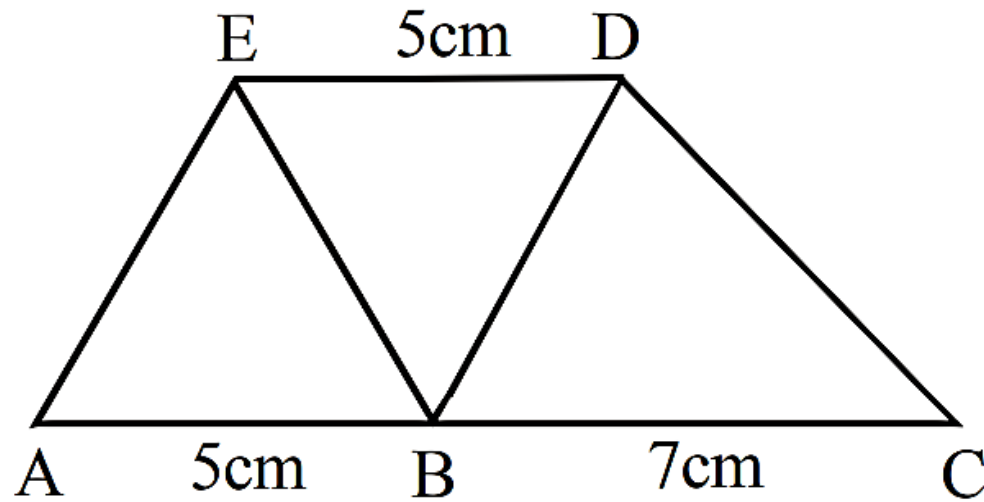
(b)  $115^\circ$

(c)  $150^\circ$

(d)  $175^\circ$

Ans: (b)

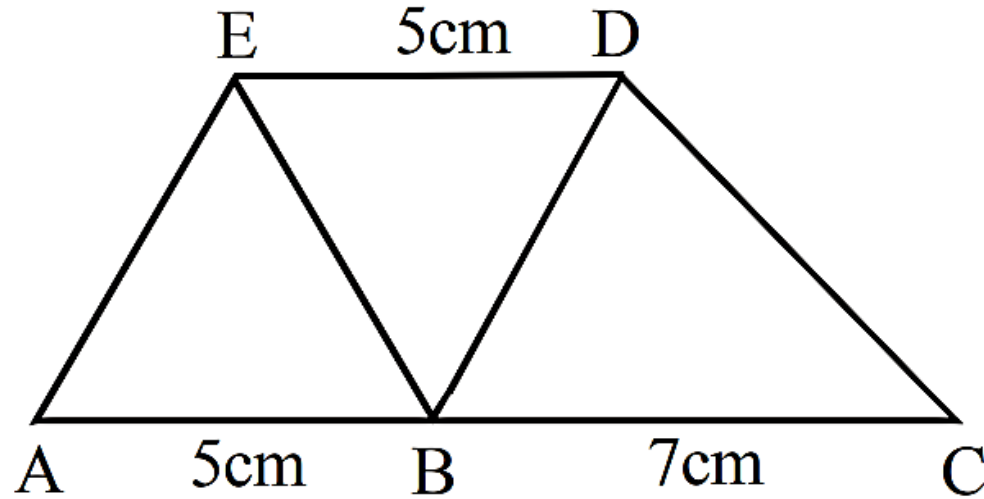
Q) In the figure given below, AC is parallel to ED and  $AB = DE = 5$  cm and  $BC = 7$  cm. What is the area ABDE : area BDE : area BCD equal to ?



- (a) 10 : 5 : 7  
(c) 2 : 1 : 2

- (b) 8 : 4 : 7  
(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  
(c) 2 : 1 : 2

- (b) 8 : 4 : 7  
(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

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**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

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- (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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(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  $\angle A = 60^\circ$  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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If  $\angle A = 60^\circ$  and  $AB = 2AD$ , then the diagonal BD will be equal to

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(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)  $60^\circ$
- (c)  $90^\circ$

- (b)  $75^\circ$
- (d)  $100^\circ$

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)  $60^\circ$
- (b)  $75^\circ$
- (c)  $90^\circ$
- (d)  $100^\circ$

**Ans: (c)**

Q) The area of a rhombus with side 13cm and one diagonal 10 cm will be

(a) 140 square cm

(b) 130 square cm

(c) 120 square cm

(d) 110 square cm

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(a) 140 square cm

(b) 130 square cm

(c) 120 square cm

(d) 110 square cm

**Ans: (c)**

Q) In a trapezium, the two non-parallel sides are equal in length, each being of 5 cm. The parallel sides are at a distance of 3 cm apart. If the smaller side of the parallel sides is of length 2 cm, then the sum of the diagonals of the trapezium is

(a)  $10\sqrt{5}$  cm

(b)  $6\sqrt{5}$  cm

(c)  $5\sqrt{5}$  cm

(d)  $3\sqrt{5}$  cm

Q) In a trapezium, the two non-parallel sides are equal in length, each being of 5 cm. The parallel sides are at a distance of 3 cm apart. If the smaller side of the parallel sides is of length 2 cm, then the sum of the diagonals of the trapezium is

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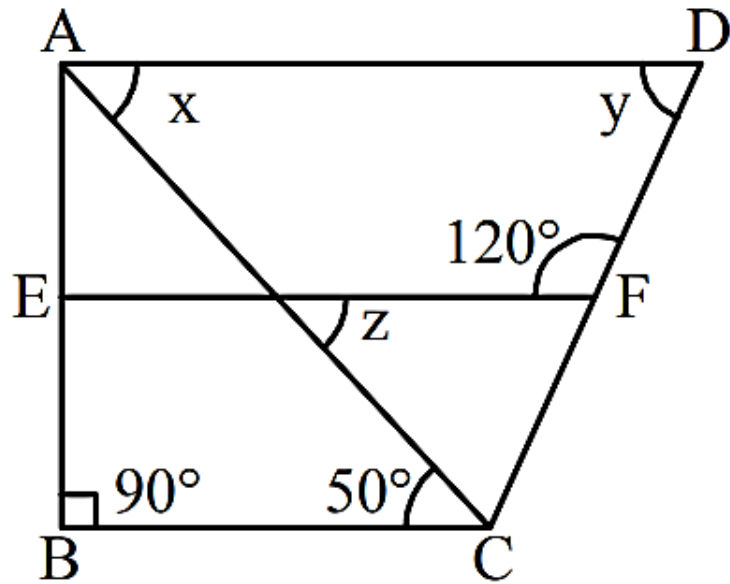
(c)  $5\sqrt{5}$  cm

(d)  $3\sqrt{5}$  cm

**Ans: (b)**



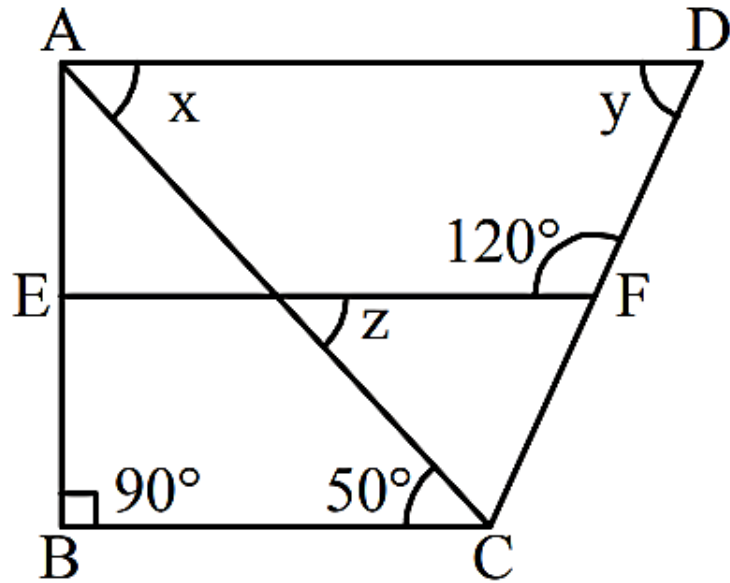
Q) In the figure given above,  $ABCD$  is a trapezium.  $EF$  parallel to  $AD$  and  $BC$ .  $\angle y$  is equal to



- (a)  $30^\circ$
- (c)  $60^\circ$

- (b)  $45^\circ$
- (d)  $65^\circ$

Q) In the figure given above,  $ABCD$  is a trapezium.  $EF$  parallel to  $AD$  and  $BC$ .  $\angle y$  is equal to



- (a)  $30^\circ$
- (c)  $60^\circ$

- (b)  $45^\circ$
- (d)  $65^\circ$

Ans: (c)

Q)  $ABCD$  is a trapezium with parallel sides  $AB = 2$  cm and  $DC = 3$  cm.  $E$  and  $F$  are the mid-points of the non-parallel sides. The ratio of area of  $ABFE$  to area of  $EFCD$  is

(a)  $9 : 10$

(b)  $8 : 9$

(c)  $9 : 11$

(d)  $11 : 9$

- Q)  $ABCD$  is a trapezium with parallel sides  $AB = 2$  cm and  $DC = 3$  cm.  $E$  and  $F$  are the mid-points of the non-parallel sides. The ratio of area of  $ABFE$  to area of  $EFCD$  is
- (a) 9 : 10                      (b) 8 : 9  
(c) 9 : 11                      (d) 11 : 9

Ans: (c)

Q) If the diagonals of a quadrilateral are equal and bisect each other at right angles, then the quadrilateral is a

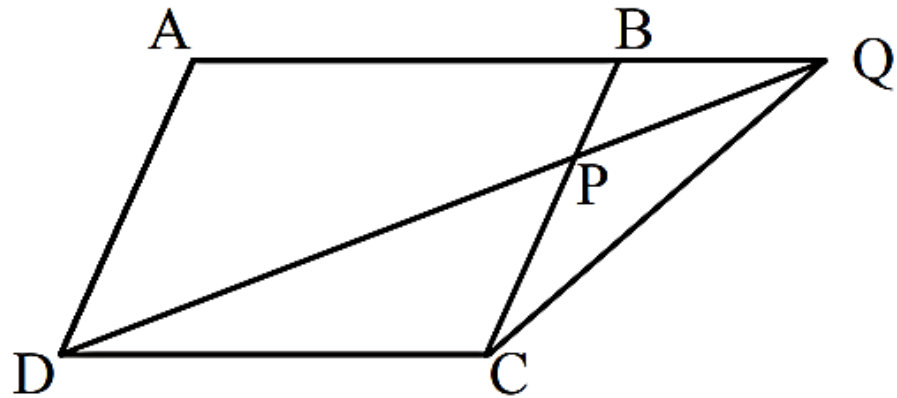
- |               |               |
|---------------|---------------|
| (a) rectangle | (b) square    |
| (c) rhombus   | (d) trapezium |

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- |               |               |
|---------------|---------------|
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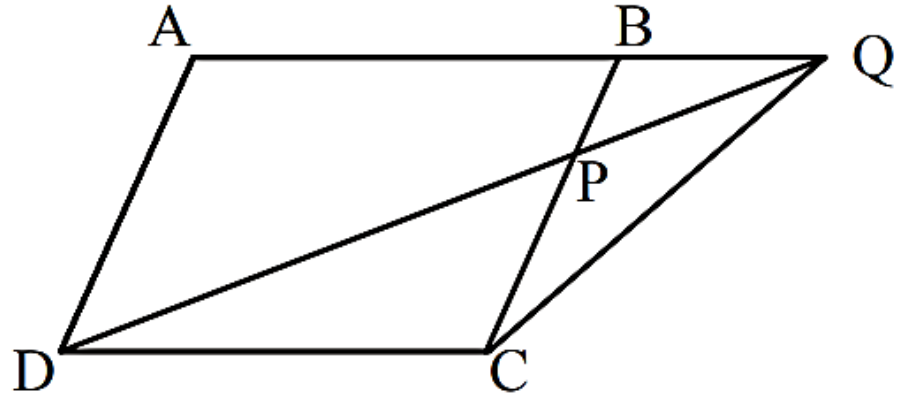
**Ans: (b)**

Q) In the figure given below,  $ABCD$  is a parallelogram.  $P$  is a point in  $BC$  such that  $PB : PC = 1 : 2$ .  $DP$  produced meets  $AB$  produced at  $Q$ . If the area of the  $\Delta BPQ$  is 20 sq units, what is the area of the  $\Delta DCP$ ?



- |                 |                   |
|-----------------|-------------------|
| (a) 20 sq units | (b) 30 sq units   |
| (c) 40 sq units | (d) None of these |

Q) In the figure given below,  $ABCD$  is a parallelogram.  $P$  is a point in  $BC$  such that  $PB : PC = 1 : 2$ .  $DP$  produced meets  $AB$  produced at  $Q$ . If the area of the  $\Delta BPQ$  is 20 sq units, what is the area of the  $\Delta DCP$ ?



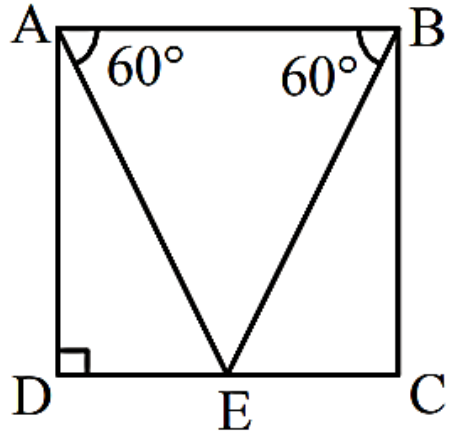
- |                 |                   |
|-----------------|-------------------|
| (a) 20 sq units | (b) 30 sq units   |
| (c) 40 sq units | (d) None of these |

**Ans: (d)**





Q) In the given figure,  $ABCD$  is a quadrilateral with  $AB$  parallel to  $DC$  and  $AD$  parallel to  $BC$ ,  $\angle ADC$  is a right angle. If the perimeter of the  $\triangle ABE$  is 6 units. What is the area of the quadrilateral ?



- (a)  $2\sqrt{3}$  sq units                      (b) 4 sq units  
(c) 3 sq units                                      (d)  $4\sqrt{3}$  sq units

**Ans: (a)**

# CDS 1 2024

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# MATHS

# STATISTICS

CLASS 1

NAVJYOTI SIR

