

INTEGRATED⁺ (V₂)

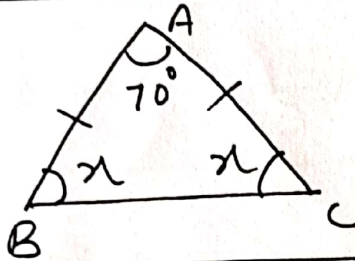
①

Class: IX, MATHEMATICS

1. TRIANGLES

TEACHING TASK (JEE MAINS)

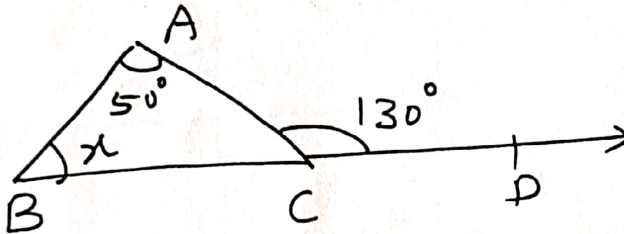
01.



$$x + x + 70^\circ = 180^\circ$$
$$\Rightarrow x = 55^\circ$$

Ans: C

02.



We have $x + 50^\circ = 130^\circ \Rightarrow x = 80^\circ$

Ans: C

03.

$$5x + 7x + 60^\circ = 180^\circ$$

$$\Rightarrow x = 10$$

$\therefore$ The other two angles = 50°, 70°

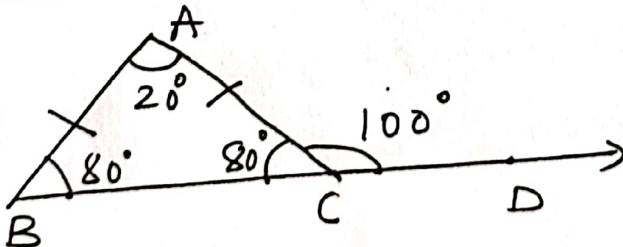
Ans: A

04.

$$\text{Smallest angle} = \frac{2}{9} \times 180^\circ = 40^\circ$$

Ans: A

05.

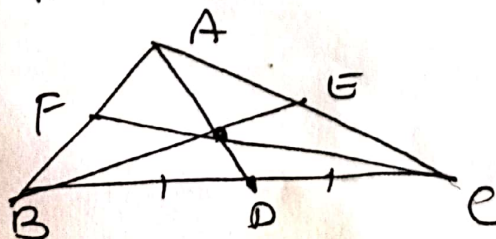


$$\therefore \angle A = 20^\circ$$

Ans: A

06.

The point of intersection is centroid.



$\therefore$ Each centroid divides the median in the ratio 2:1

Ans: C

07. Given sides = 3:4:5

(2)

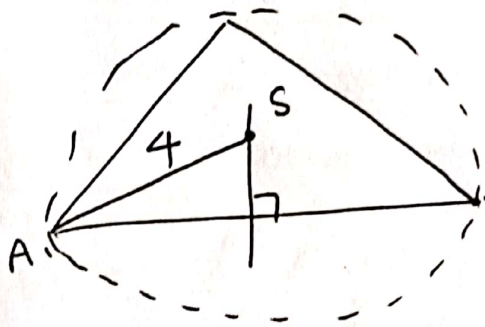
let $3x, 4x, 5x$

$$\Rightarrow (5x)^2 = (3x)^2 + (4x)^2$$

$\Rightarrow$ The triangle is a right angled triangle. Ans: B

08. Distance = $\frac{2}{3} \times 9 = 6 \text{ cm}$ Ans: B

09



Circumradius = SA = 4 cm

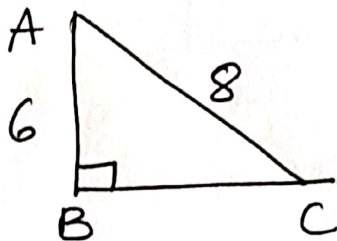
Ans: A

10. Conceptual

Ans: C

JEE ADVANCED

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$$\begin{aligned} BC^2 &= 8^2 - 6^2 \\ &= 64 - 36 \\ &= 28 \\ \therefore BC &= \sqrt{28} \end{aligned}$$

$\therefore$ The orthocentre lies at B
The circumcentre lies at the mid-point of AC
Ans: B, C

12

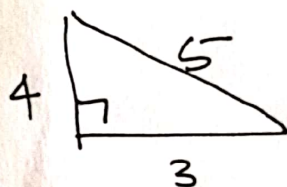
$$(a+b) + (b+c) + (c+a) = 11 + 13 + 12$$

$$\Rightarrow 2(a+b+c) = 36$$

$$\Rightarrow a+b+c = 18 \text{ or half of } 36$$

Ans: B, C

13. Statement I:



(True)

Since, $3^2 + 4^2 = 5^2$

Statement II: Conceptual (True)

Ans: A

14. Statement I: Conceptual (True)

Statement II: Conceptual (False)

Ans: C

15. Assertion: Conceptual (True)

Reason: Conceptual (True)

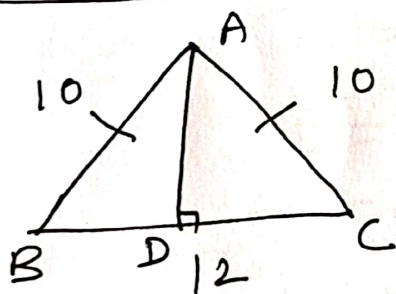
Ans: A

16. Assertion: Conceptual (False)

Reason: Conceptual (True)

Ans: D

17



Clearly, $\triangle ABC$ is an isosceles triangle.

AD bisects BC $\Rightarrow BD = DC$

$\therefore BD = 6 \text{ cm}$

Ans: B

18

Clearly, $AB = 10 \text{ cm}$, $BD = 6 \text{ cm}$

$\therefore AD^2 = AB^2 - BD^2$

$= 10^2 - 6^2$

$= 100 - 36$

$= 64$

$\therefore AD = 8 \text{ cm}$

Ans: C

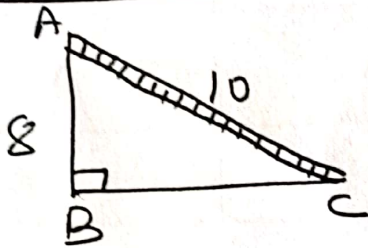
19. $G = \text{Centroid}$

Ans: C

20 Conceptual

Ans: B

21.

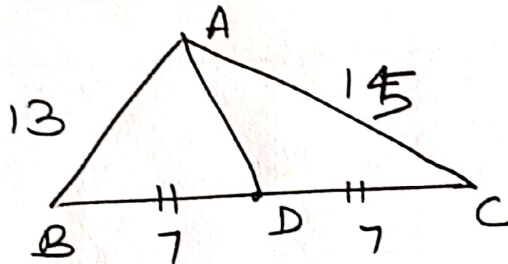


$$\begin{aligned} BC^2 &= AC^2 - AB^2 \\ &= 10^2 - 8^2 \\ &= 100 - 64 \\ &= 36 \end{aligned}$$

$$\therefore BC = 6 \text{ m}$$

Ans: 6

22



$$\text{We have, } AB^2 + AC^2 = 2(AD^2 + BD^2)$$

$$\Rightarrow 13^2 + 15^2 = 2(AD^2 + 7^2)$$

$$\Rightarrow AD^2 = 128$$

$$\therefore AD = \sqrt{128} = 11.31 \approx 11.3$$

Ans: 12

23 A) Conceptual (P)

B) Conceptual (Q)

C) Conceptual (R)

D) Conceptual (S)

Ans: P, Q, R, S

24. A) Conceptual (Q)

B) Conceptual (S)

C) Conceptual (R)

D) Conceptual (P)

Ans: Q, S, R, P

LEARNERS TASK (CUES) (5)

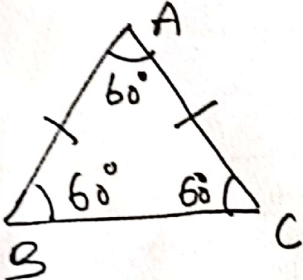
01. Clearly $6^2 + 8^2 = 10^2$ Ans: D

02. Conceptual Ans: A

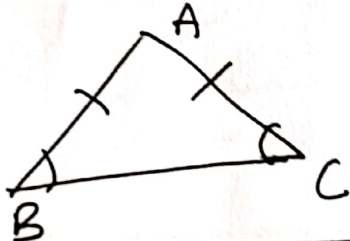
03. Conceptual Ans: B

04. Conceptual Ans: D

05. Conceptual Ans: D

06.  $\therefore \triangle ABC$ is an equilateral triangle Ans: A

07. Conceptual Ans: A

08.  $\therefore AB = AC$
 $\Rightarrow \angle B = \angle C$
 $\Rightarrow \angle B - \angle C = 0^\circ$ Ans: C

09. Conceptual Ans: A

10. Conceptual Ans: B

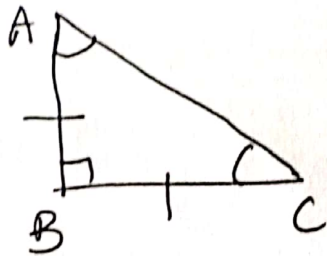
JEE MAINS LEVEL

01. Perimeter = $5 + 5 + 6 = 16$ cm Ans: A

02. $\angle A = \angle C \Rightarrow BC = AB$ Ans: A

03. Conceptual Ans: A

04.



$$\angle A = \angle C = 45^\circ$$

$$\angle B = 90^\circ$$

Ans: C

05

Conceptual

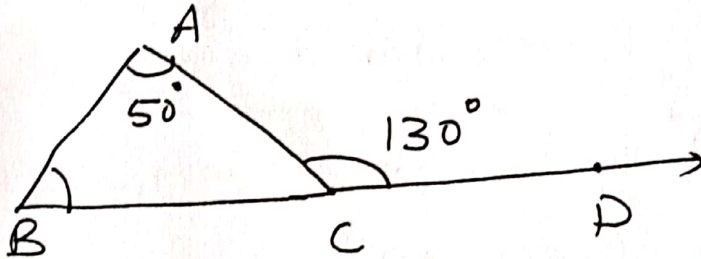
Ans: C

06

Conceptual

Ans: C

07



$$\therefore \angle B + \angle A = 130^\circ$$

$$\Rightarrow \angle B + 50^\circ = 130^\circ$$

$$\Rightarrow \angle B = 80^\circ$$

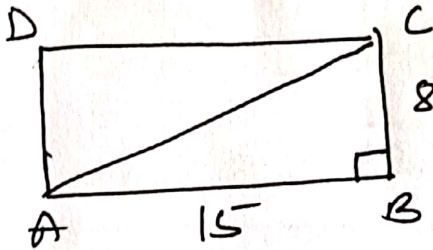
Ans: C

Ans: B

08

$$45^\circ + 45^\circ = 90^\circ$$

09



$$AC^2 = 15^2 + 8^2$$

$$= 225 + 64$$

$$= 289$$

$$\therefore AC = 17$$

Ans: C

10

Conceptual

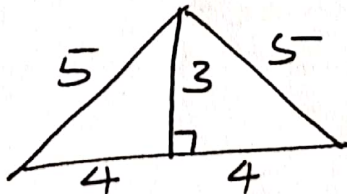
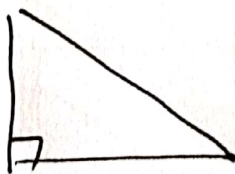
Ans: D

JEE ADVANCED

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A), B), C), are conceptually true

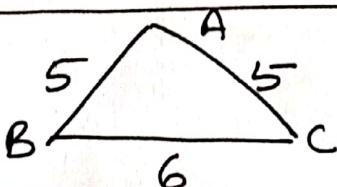
D)



True)

Ans: A, B, C, D

12



A, B, C, D are conceptually true

Ans: A, B, C, D

13. Statement I: Conceptual (True) (9)
Statement II: Conceptual (False) Ans: C

14. Statement I: Conceptual (True)
Statement II: Conceptual (False) Ans: C

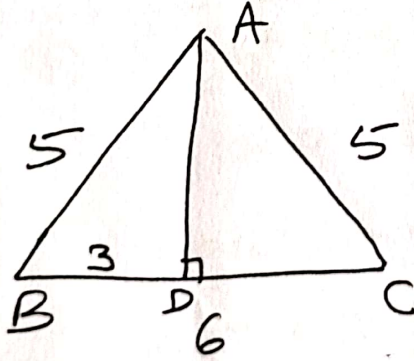
15. Assertion: Conceptual (True)
Reason: Conceptual (True) Ans: A

16. Assertion: Conceptual (True)
Reason: Conceptual (True) Ans: A

17.
$$m_a = \frac{1}{2} \sqrt{2b^2 + 2c^2 - a^2}$$

$$5 = \frac{1}{2} \sqrt{2(5)^2 + 2(6)^2 - a^2}$$

$$\Rightarrow a = \sqrt{22}$$
 Ans: B

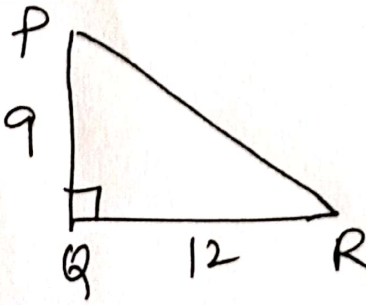
18. 
$$AD^2 = AB^2 - BD^2$$

$$= 5^2 - 3^2$$

$$= 25 - 9$$

$$= 16$$

$$\therefore AD = 4$$
 Ans: B

19. 
$$PR^2 = PQ^2 + QR^2$$

$$= 9^2 + 12^2$$

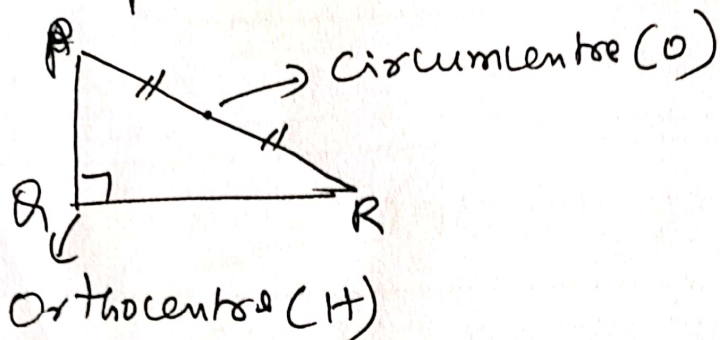
$$= 81 + 144$$

$$= 225 \therefore PR = 15$$
 Ans: B

20

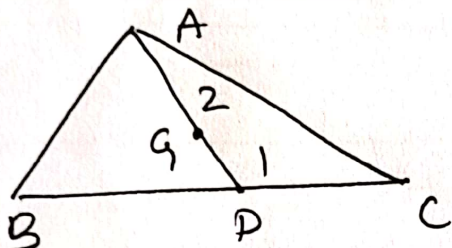
Conceptual

(8)



Ans: B

21.

Given $AD = 9\text{cm}$

$$GD = \frac{1}{3} \times 9 = 3\text{cm}$$

Ans: 3

22

$$\text{Largest angle} = \frac{4}{9} \times 180^\circ = 4 \times 20^\circ = 80^\circ$$

Ans: 80°

23

- A) Conceptual (P)
- B) conceptual (Q)
- C) Centroid (R)
- D) Incentre (S)

Ans: P, Q, R, S

24

- A) Right angled triangle (P)
- B) Pythagorean triplet (Q)
- C) Equilateral triangle (R)
- D) Not a right angled triangle (S)

$\Rightarrow$ THE END $\Leftarrow$