

8. UNDERSTANDING

①

TRIANGLES

2025/26

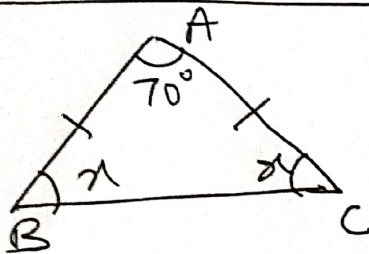
Class: VII . MATHEMATICS

FOUNDATION : SOLUTIONS

TEACHING TASK

JEE MAINS LEVEL

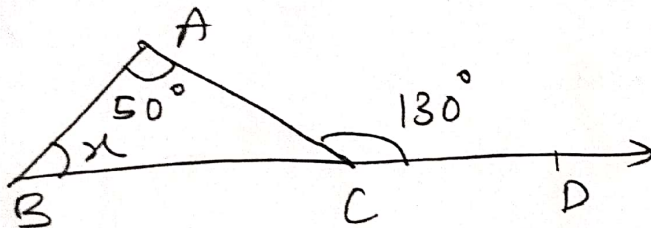
01.



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

Ans: C

02



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

Ans: C

03

one angle = 60°

Sum of other two angles = $180^\circ - 60^\circ = 120^\circ$

Now, 1st angle = $\frac{5}{12} \times 120^\circ = 50^\circ$

2nd angle = $120^\circ - 50^\circ = 70^\circ$

Ans: A

04

1 : 3 : 6

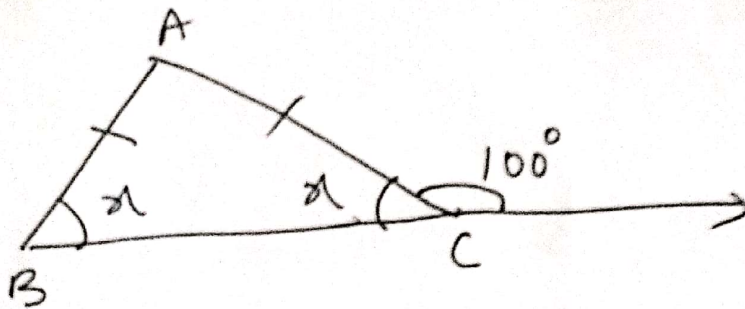
Since $\angle A = \frac{1}{10} \times 180^\circ = 18^\circ$

$$\angle B = \frac{3}{10} \times 180^\circ = 54^\circ$$

$$\angle C = \frac{6}{10} \times 180^\circ = 108^\circ$$

Ans: C

05



Given $x = 80^\circ$ (2)

$$x + x + A = 180^\circ$$

$$80^\circ + 80^\circ + A = 180^\circ$$

$$\Rightarrow A = 20^\circ$$

Ans: A

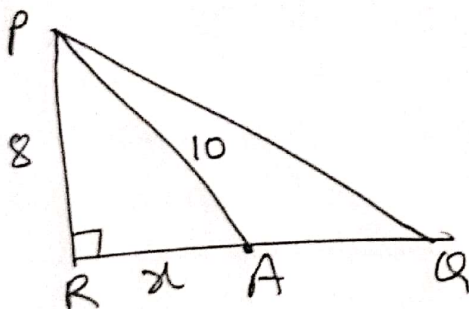
06

option: B 8 cm, 9 cm, 16 cm

Since	$8 + 9 > 16$	$9 - 8 < 16$
	$9 + 16 > 8$	$16 - 9 < 8$
	$8 + 16 > 9$	$16 - 8 < 9$

Ans: B

07



$$8^2 + x^2 = 10^2 \Rightarrow x = 6$$

$$\therefore RQ = 12 \text{ cm}$$

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

$$= 8^2 + 12^2$$

$$= 64 + 144 = 208 \text{ Ans: B}$$

08

$\angle B = 60^\circ$, $\angle C = 45^\circ \Rightarrow \angle A = 75^\circ$

Largest side $\rightarrow$ opp. side of $\angle A = BC$

Ans: B

09

$\angle A = 50^\circ$, $\angle B = 70^\circ \Rightarrow \angle C = 60^\circ$

Smallest side $\rightarrow$ opp. side of $\angle A = BC$ Ans: B

06

Reason:

Conceptual (True)

Ans: A

07

Orthocentre

Ans: B

10. $\angle B = 70^\circ, \angle C = 50^\circ \Rightarrow \angle A = 60^\circ$ (3)

$\therefore x = 30^\circ$

$x + y + 70^\circ = 180^\circ$

$\Rightarrow 30^\circ + y + 70^\circ = 180^\circ \Rightarrow y = 80^\circ$

We have $\angle y > \angle B (i.e. 70^\circ)$

$\Rightarrow AB > AD$

$y > x$

$AD > BD$

$\Rightarrow AD > CD$

Ans: D

JEE ADVANCED LEVEL

01. A) $65^\circ + 65^\circ = 130^\circ \checkmark$ B) $70^\circ + 60^\circ = 130^\circ \checkmark$

C) $20^\circ + 50^\circ = 130^\circ \checkmark$

D) $75^\circ + 55^\circ = 130^\circ$

Ans: A, B, C, D

02. Conceptual

Ans: A, B, C

03. Statement I: Conceptual (True)

Statement II: Conceptual (True)

Ans: A

04. Statement I: Conceptual (True)

Statement II: Conceptual (True)

Ans: A

05. Assertion: Conceptual (True)

Reason: Conceptual (True)

Ans: A

06. Assertion: Conceptual (True)

Reason: Conceptual (True)

Ans: A

07. Orthocentre

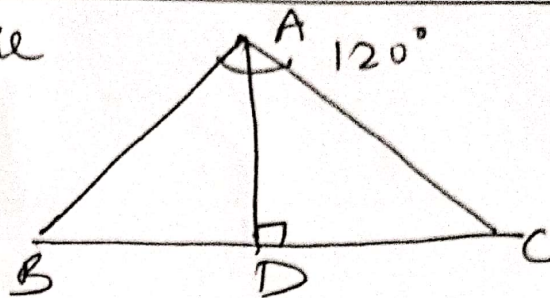
Ans: B



08 outside the triangle

Ans: (4) C

09 obtuse angled triangle



Ans: D

10 Conceptual

Ans: B

11

PR We know, $13^2 = 5^2 + 12^2$

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

~~Hyper~~: $PR^2 = 13^2 = 169$

Ans: 169

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

Ans: 40°

13

a) Angle sum property (—)

b) Exterior angle property (x)

c) Pythagorean Theorem (q)

d) Triangle inequality (P, S)

Ans: —, x, q, (P, S)

14 a) Equilateral (q)

b) Isosceles (P)

c) Right-angled (S)

d) Scalene (x)

Ans: q, P, S, x

LEARNERS TASK (CUELS) (5)

01) Conceptual

Ans: B

02) Conceptual

Ans: A

03) Conceptual

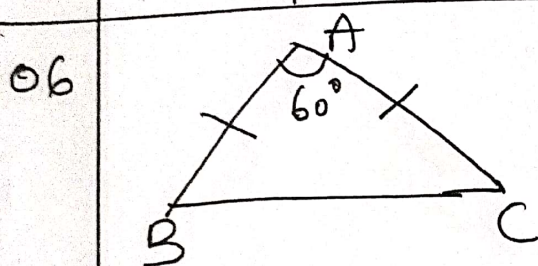
Ans: B

04) Conceptual

Ans: B

05) Conceptual

Ans: D



$LB = LC \Rightarrow LB = LC = 60^\circ$
 $\triangle ABC$ is ~~Isosceles~~ ^{Equilateral} triangle

Ans: ~~B~~ A

07) Conceptual

Ans: B

08) $AB = AC \Rightarrow LC = LB \Rightarrow LB - LC = 0^\circ$

Ans: C

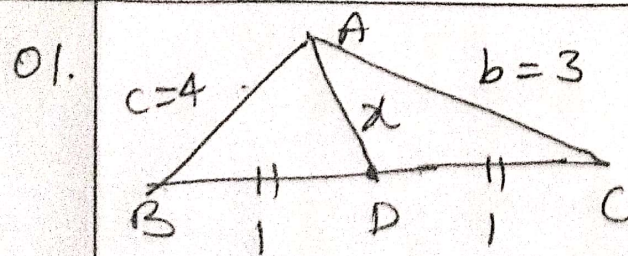
09) Conceptual

Ans: A

10) Conceptual

Ans: B

JEE MAINS LEVEL



We have $AB^2 + AC^2 = 2(AD^2 + BD^2)$
 $\Rightarrow 4^2 + 3^2 = 2(x^2 + 1^2)$

$$x = \sqrt{\frac{23}{2}}$$

Opt B: $\frac{1}{2} \sqrt{46}$

$$= \sqrt{\frac{46}{4}} = \sqrt{\frac{23}{2}}$$

Ans: B

02

$$\angle A = \angle C \Rightarrow BC = AB$$

Ans: A⁽⁶⁾

03

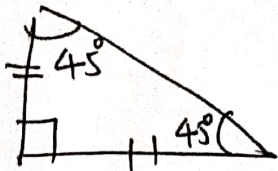
$$A : B : C = 7 : 3 : 5$$

Largest angle = $\angle A$

Hence, Largest side = BC

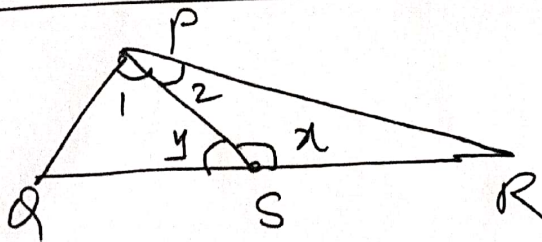
Ans: C

04

 45° or 90°

Ans: C

05

Given $PR > PQ$

$$\Rightarrow \angle Q > \angle R$$

$$\Rightarrow 180^\circ - (\angle 1 + y) > 180^\circ - (\angle 2 + x)$$

$$\Rightarrow -(\angle 1 + y) > -(\angle 2 + x)$$

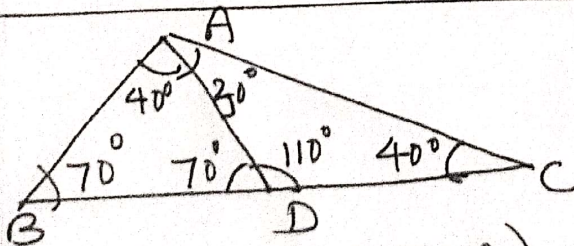
$$\Rightarrow \angle 1 + y < \angle 2 + x$$

$$\Rightarrow \angle y < \angle x \text{ since } \angle 1 = \angle 2$$

$$\Rightarrow x > y$$

Ans: C

06

A) $AB > CD$ (True)B) $AB = AC$

$$\Rightarrow \angle C = \angle B$$

$$\Rightarrow 40^\circ = 70^\circ \text{ (False)}$$

C) $AC > AB$

$$\angle B > \angle C$$

$$\Rightarrow 70^\circ > 40^\circ \text{ (True)}$$

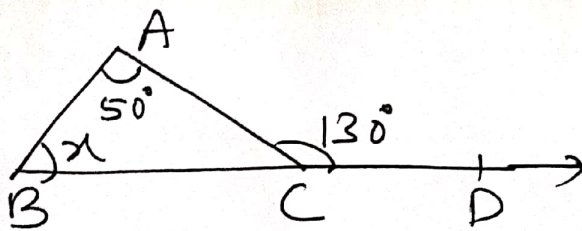
D) $AC = BC$

$$\angle B = \angle A$$

$$\Rightarrow 70^\circ = 70^\circ \text{ (True)}$$

Ans: B

07



$$x + 50^\circ = 130^\circ$$

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

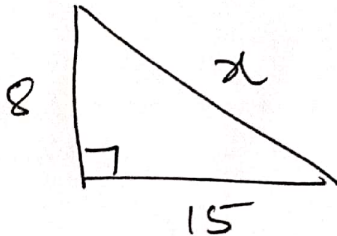
Ans: C

08

$$90^\circ = 60^\circ + 30^\circ$$

Ans: D

09

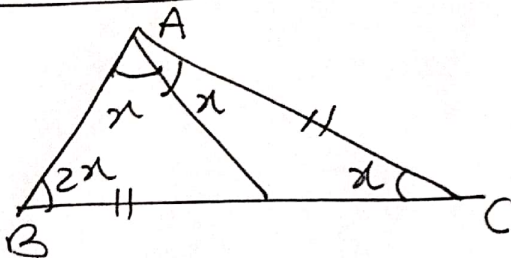


$$x^2 = 15^2 + 8^2$$

$$\Rightarrow x = 17$$

Ans: C

10



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

$$\Rightarrow x = 36^\circ$$

$$\therefore \angle BAC = 2x = 2 \times 36^\circ$$

$$= 72^\circ$$

Ans: B

JEE ADVANCED LEVEL

01. Conceptual All options are correct Ans: A, C

02. Conceptual

Ans: A, C

03. Statement I: Conceptual (True)

Statement II: Conceptual (True)

Ans: A

04. Statement I: Conceptual (False)

Statement II: Conceptual (True)

Ans: D

05. Assertion: $5 + 6 = 11$ (False)

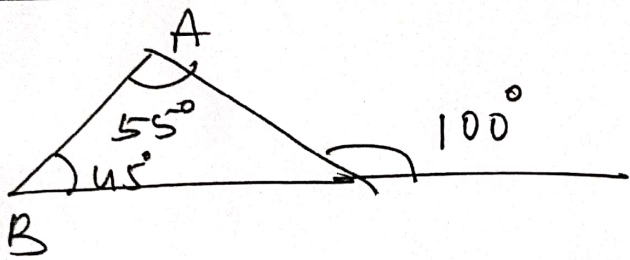
Reason: Conceptual (True)

Ans: D

06. Assertion: Conceptual (False)

Reason: Conceptual (True)

Ans: D

07.	180°	Ans: B ⁽⁸⁾
08	Conceptual	Ans: C
09	Conceptual	Ans: C
10	No	Ans: B
11.	$180^\circ - 35^\circ = 145^\circ$	Ans: 145°
12		Ans: 100°
13	a) Incentre (P) b) centroid (Q) c) Circumcentre (R) d) Orthocentre (S)	Ans: P, Q, R, S
14	a) Equilateral (Q) b) Right isosceles (S) c) obtuse isosceles (P) d) Right scalene (R)	Ans: Q, S, P, R

⇒ THE END ⇐