INTEGRATED+

Class: VII, MATHEMATICS

7. CONGRUENCE OF TRIANGLES

TEACHING TASK.

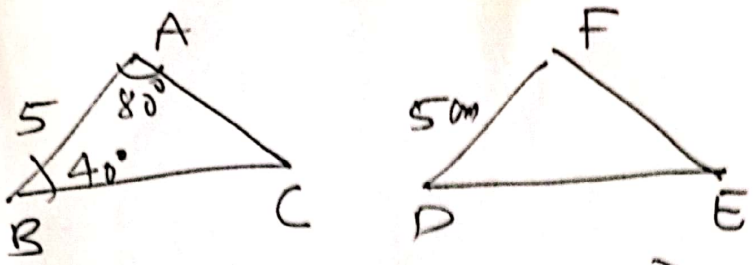
01. $AB = PQ$, $AC = PR$, $BC = RQ$.
$\therefore \triangle ABC \cong \triangle PQR$ (SSS) Ans: C

02 Since $\triangle ACB \cong \triangle PQR$
$\therefore \angle Q = \angle C = 180^\circ - (50^\circ + 70^\circ)$
$= 180^\circ - 120^\circ = 60^\circ$
Ans. D

03 clearly SAS congruency Ans: A

04 In $\square ACBD$, $AC = AD$
AB is bisector of $\angle CAD$
In $\triangle ABC$, $\triangle ABD$
$AC = AD$ (given)
$AB = AB$ (Common side)
$\angle CAB = \angle BAD$ (AB is angle bisector)
$\therefore \triangle ABC \cong \triangle ABD$ (SAS)
$\Rightarrow BC = BD$
Ans: D

05 Conceptual Ans: D

06. 

(2)

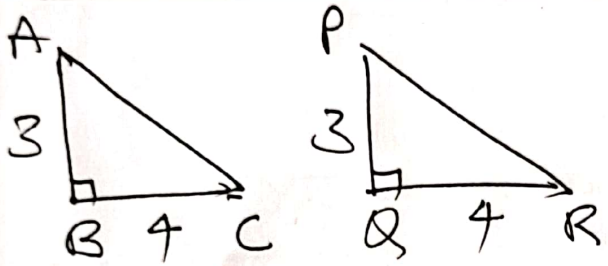
$\angle E = \angle C = 180^\circ - (80^\circ + 40^\circ) = 180^\circ - 120^\circ = 60^\circ$

Ans: B

07. $XY = 6, YZ = 8, PQ = 6, QR = 8$

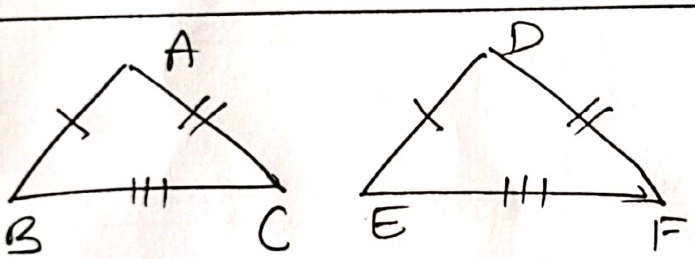
$\triangle XYZ \cong \triangle PQR$ (RHS)

Ans: B

08 

$\triangle ABC \cong \triangle PQR$ (RHS)

Ans: B

09. 

$\triangle ABC \cong \triangle DEF$ (SSS)

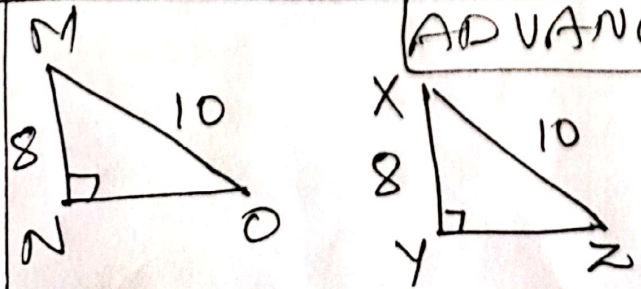
Ans. D

10 3 cm, 4 cm, 5 cm

6 cm, 8 cm, 10 cm (double of 1st triangle)

∴ Both triangles are not congruent, but they are similar

Ans: B

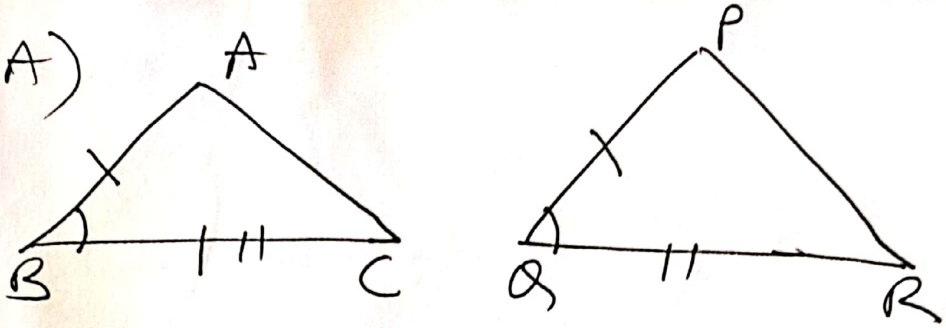
11. 

ADVANCED

A) $\triangle MNO \cong \triangle XYZ$ ✓

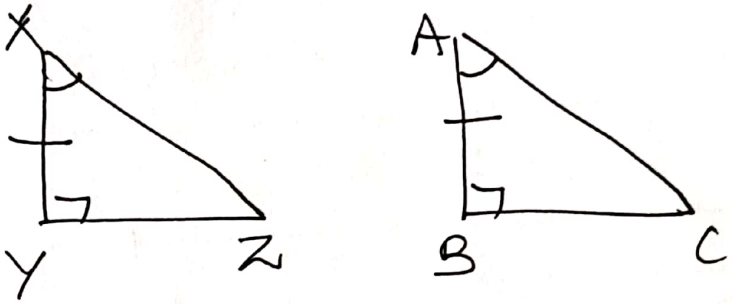
B)

Ans. A

12. A) 

$\triangle ABC \cong \triangle PQR$ (SAS) ✓

(3)

B) C) 

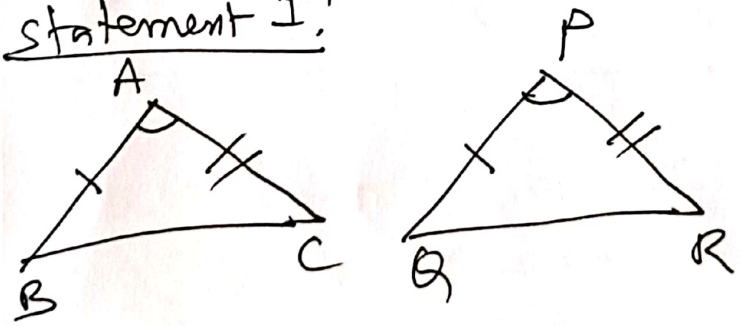
$\triangle XYZ \cong \triangle ABC$ (ASA Rule) Ans: C

13 Statement I: Equal altitudes → Equilateral triangle (True)

Statement II: Equilateral triangle → Equal altitudes (True)

Ans. A

14. Statement I:



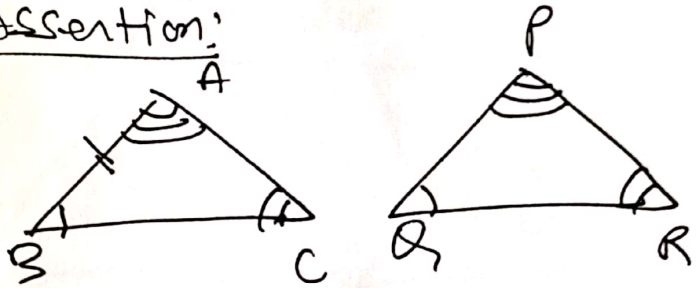
(SAS) (True)

Statement II: SAS rule (True) Ans A

15 Assertion: $\triangle ABC \cong \triangle PQR$ (SAS) (True)

Reason: Conceptual (True) Ans: A

16. Assertion:



$\triangle ABC \cong \triangle PQR$ (ASA) (~~Four~~ False)

Reason: Conceptual (False)

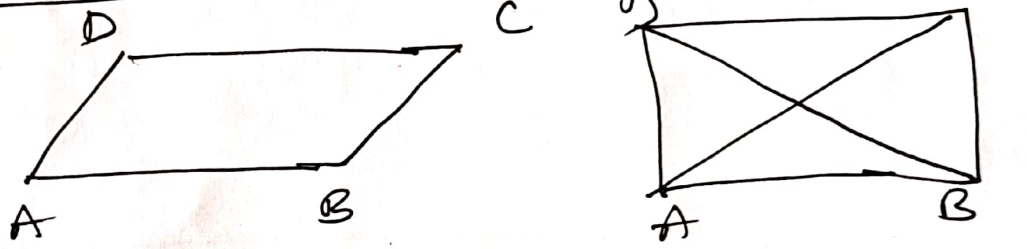
(4)

Ans: (C)

17. $\triangle ADC \cong \triangle CBA$ (SSS)

Ans: D

18



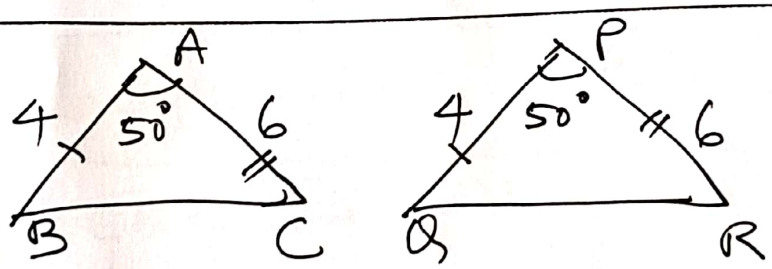
$AC = BD \Rightarrow \angle ABC = 90^\circ$

Ans: 90°

19. $\triangle ABC \cong \triangle PQR$ (SAS)

Ans. A

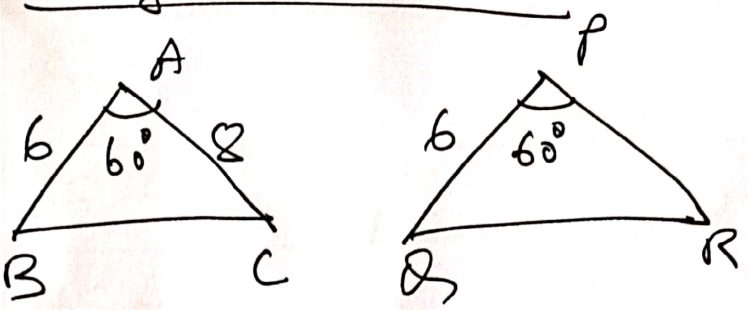
20.



Since the length of BC is not given, ~~BC~~ length can not be determined

(* In higher classes, you will have a formula to find the length of BC)

21. Integer answer type



$PR = AC = 8$ cm

Ans: 8

22 $\angle B = \angle C = 45^\circ$

Ans: 45°

23 a) SSS (t) | c) ASA (γ)
b) RHS (P) | d) SAS (Q)

Ans: t, P, γ, Q

24. a) SAS (P) | c) SSS (γ)
b) SAS (P) | d) RHS (Q)

Ans: P, P, γ, Q

LEARNERS TASK (CUQ's)

01. Clearly $\triangle ABC \cong \triangle DEF$ (SSS). Ans: A

02 ~~$\triangle ERR \cong \triangle RDE$~~
$\triangle ABC \cong \triangle PSR$

Ans: C

03 $\triangle CBA \cong \triangle RDE$

Ans: A

04 SAS

Ans: D

05 RHS

Ans: D

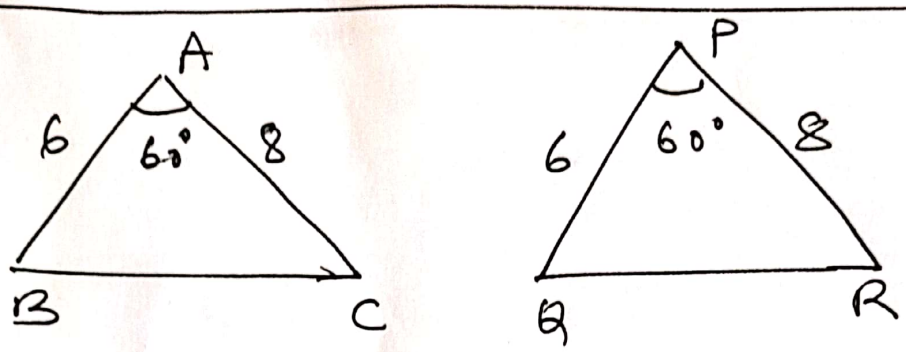
06 SSS

Ans: C

07	$AC = PR$, $\angle CAB = \angle QPR$	Ans. D
08	ASA	Ans: A
09	SSA	Ans: B
10	ASA	Ans B

JEE MAINS LEVEL

01.	$\angle P = \angle U$, $\angle Q = \angle V$, $\angle R = \angle W$ $PQ = UV$, $QR = VW$, $PR = UW$	Ans: D
02	SSS Congruency	Ans: A
03	$\triangle AOC \cong \triangle BOD$, $AC = BD$, $AC \parallel BD$	Ans: D
04	All the above	Ans: D
05	All the above	Ans: D
06	AD bisects $\angle BAC$	Ans: C
07	All the above	Ans: D
08	ASA congruent	Ans: B
09	$\angle F = 180^\circ - (50^\circ + 80^\circ) = 50^\circ$ $\therefore \angle Z = 50^\circ$	Ans: B
10.	three sides	Ans: C

11. 

$\triangle ABC \cong \triangle PQR$ (SAS) Ans: A

12 All corresponding sides are equal Ans: A

13 Statement I: Conceptual (True)

Statement II: Conceptual (True) Ans: A

14. Statement I: SAS (True)

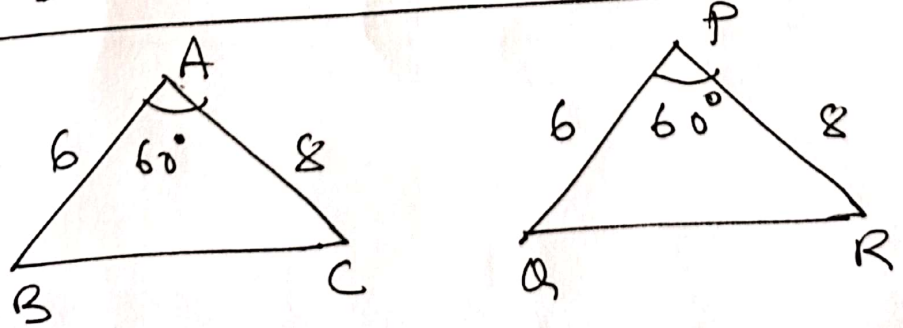
Statement II: RHS (True) Ans: A

15. Assertion: Conceptual (True)

Reason: Conceptual (True) Ans: A

16. Assertion: SAS (True)

Reason: SAS (Conceptual) (True) Ans: A

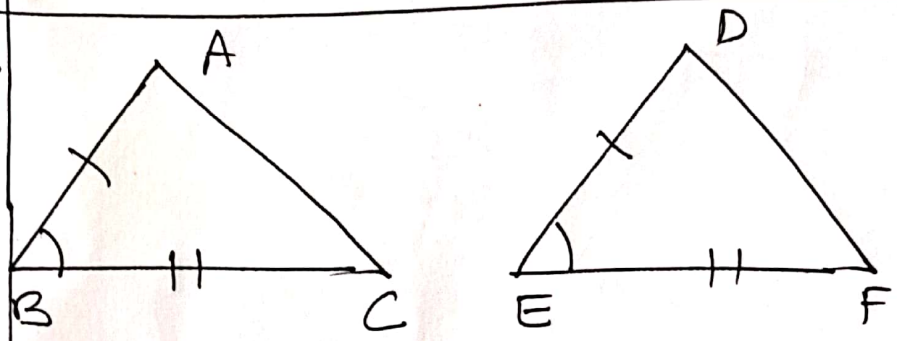
17. 

SAS Ans: A

18 BC = 7cm

(8) Ans. B

19.



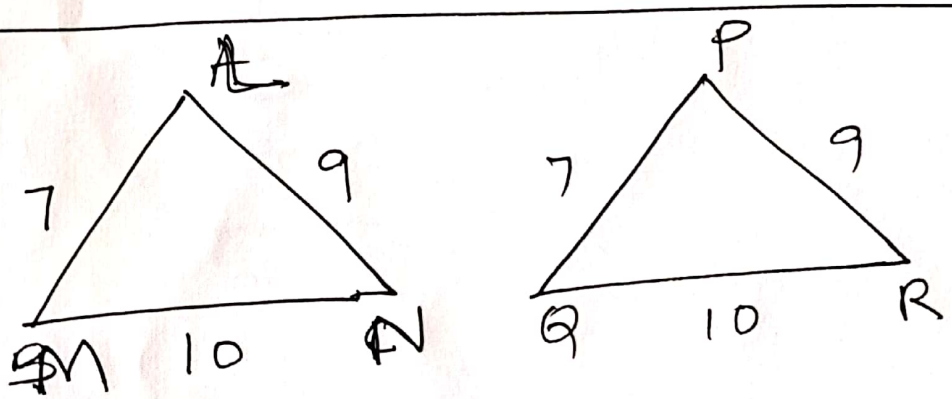
SAS

Ans : C

20 $\angle A = \angle D$

Ans. B

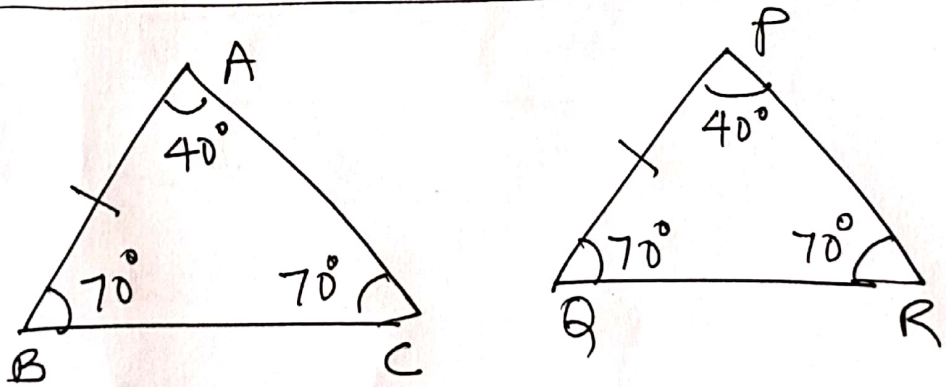
21.



PQ = 7cm

Ans: 7cm

22

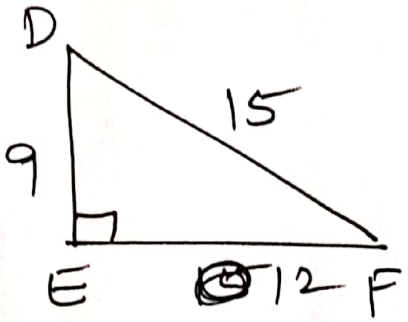


$\therefore \angle R = 70^\circ$

Ans : 70°

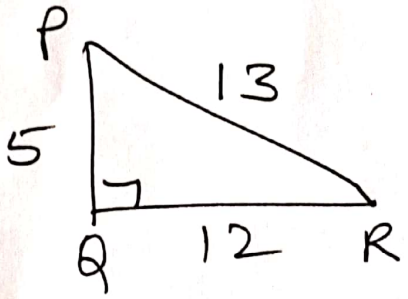
23

23 a)



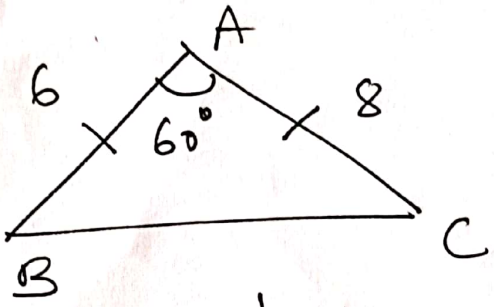
DF = 12cm (q)

b)

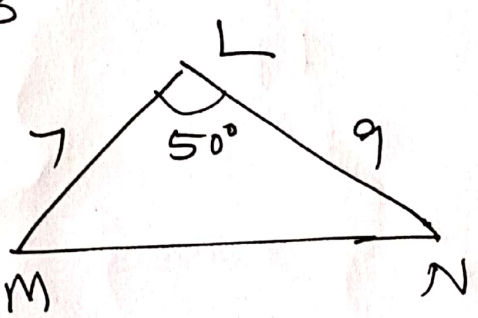


QR = 12cm (q)

c)



d)



Ans: q, q, —, —

24 a) ASA (r)

b) SSS (s)

c) RHS (q)

d) SAS (p)

Ans: r, s, p, q

⟹ THE END ⟸