

FOUNDATION

Class: 9th : MATHEMATICS

TRIANGLES

TEACHING TASK JEE MAINS LEVEL

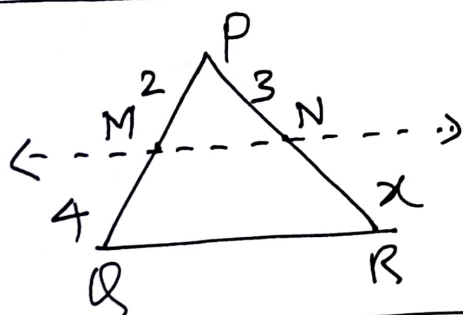
01 For two similar triangles, the ratio of sides and the ratio of altitudes is same.
 $\therefore$ The ratio of altitudes = 5:12

Ans: C

02 Sides ratio = 1:4
Volumes ratio = $1^3 : 4^3$
 $= 1:64$

Ans: C

03



$$\therefore \frac{2}{4} = \frac{3}{x}$$
$$\Rightarrow x = 6$$

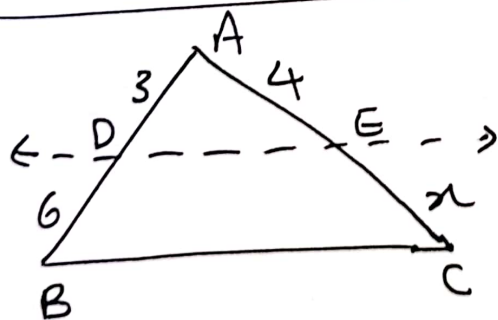
Ans: B

04

Similar by SSS

Ans: B

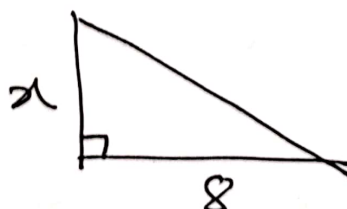
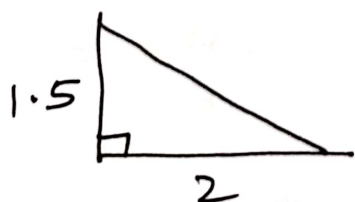
05



$$\frac{3}{6} = \frac{4}{x}$$
$$\Rightarrow x = 8 \text{ cm}$$

Ans: B

06



$$\frac{1.5}{2} = \frac{x}{8}$$
$$\Rightarrow x = 6 \text{ cm}$$

Ans: 6

07. We have

(2)

$$\frac{\text{Area of first triangle}}{\text{Area of second triangle}} = \frac{(\text{side})^2}{(\text{side})^2}$$

$$\Rightarrow \frac{16}{25} = \frac{(4)^2}{x^2} \Rightarrow x = 5 \text{ cm}$$

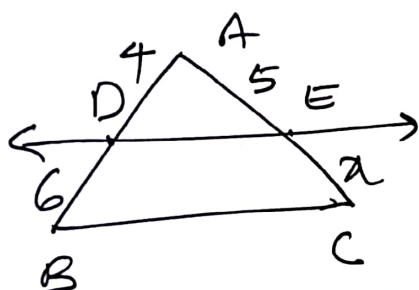
Ans: A

08 We know, for similar triangles, the sides and the corresponding perimeters are in the same ratio

$$\frac{5}{7} = \frac{10}{x} \Rightarrow x = 14 \text{ cm}$$

Ans: B

09



$$\therefore \frac{4}{6} = \frac{5}{x}$$

$$\Rightarrow x = 7.5$$

Ans: B

10.

$$\text{Ratio of Areas} = \frac{6^2}{10^2} = \frac{36}{100}$$

Ans: C

JEE ADVANCED LEVEL

01.

$$\frac{32}{x} = \left(\frac{2}{5}\right)^2 \Rightarrow \frac{32}{x} = \frac{4}{25}$$

$$\Rightarrow x = 200 \text{ (or)} \frac{32 \times 25}{4}$$

Ans: A, D

02

Perimeter of smaller triangle = $6 + 8 + 10 = 24$
Let the larger triangle perimeter = x

$$\therefore \frac{x}{24} = \frac{9}{6} \Rightarrow x = 36$$

Ans: A



03 Statement I: Conceptual (False)

(3)

Statement II: Conceptual (True)

Ans: D

04 Statement I: Conceptual (True)

Statement II: Conceptual (True)

Ans: A

05 Assertion: $\frac{36}{81} = \left(\frac{2}{3}\right)^2$ (True)

Ans: A

Reason: Conceptual (True)

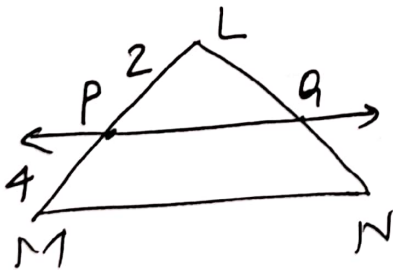
06 Assertion:

$$\frac{\text{Area first triangle}}{\text{Area second triangle}} = \frac{\text{median}^2}{\text{median}^2} = \left(\frac{1}{9}\right)^2 = \frac{1}{81} \text{ (True)}$$

Reason: Conceptual (True)

Ans: B

07



$$\frac{LP}{PM} = \frac{LQ}{QN} = \frac{2}{4} = \frac{1}{2}$$

Ans: C

08

$$\frac{LQ}{QN} = \frac{1}{2} = \frac{5}{QN} \Rightarrow QN = 10$$

Ans: B

09. $\angle A + \angle B + \angle C = 180^\circ$
 $\Rightarrow 50^\circ + 60^\circ + \angle C = 180^\circ$
 $\Rightarrow \angle C = 70^\circ$

Ans: C

10. First triangle: $50^\circ, 60^\circ, 70^\circ$
 Second triangle: $70^\circ, 60^\circ, 50^\circ$
 $\therefore$ Two triangles are similar by AAA

Ans: A

11. $50^\circ + 60^\circ + \angle C = 180^\circ \Rightarrow \angle C = 70^\circ$

Ans: 70°

12. 60°

Ans: 60°

13. a) AAA similarity (P)
 b) SSS similarity (Q)
 c) SAS similarity (R)
 d) AA similarity (S)

Ans: P, Q, R, S

14: a) Triangles with angles $45^\circ, 90^\circ$ and $45^\circ, 90^\circ$ (P)

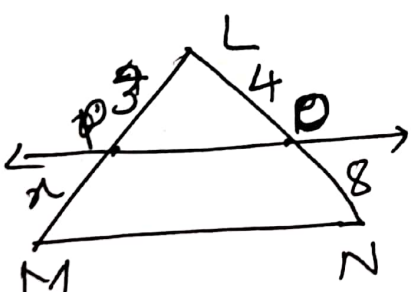
- b) SSS similarity (Q)
 c) SAS similarity (R)
 d) AA criterion (S)

Ans: P, Q, R, S

LEARNERS TASK

CUQ'S

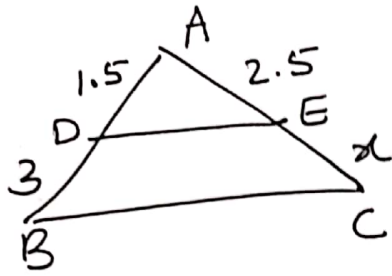
(5)

01.	Conceptual	Ans: C
02	Conceptual	Ans: B
03	Conceptual	Ans: B
04	Conceptual	Ans: B
05	Conceptual	Ans: B
06	Conceptual	Ans: B
07	Conceptual	Ans: A
08	Conceptual	Ans: B
09	Conceptual	Ans: B
10	 $\frac{3}{x} = \frac{4}{8}$ $\Rightarrow x = 6\text{cm}$ $\Rightarrow PM = 6\text{cm}$	Ans: B

JEE MAINS LEVEL

01.	Conceptual	Ans: C
02	Conceptual	Ans: C
03	Conceptual	Ans: C

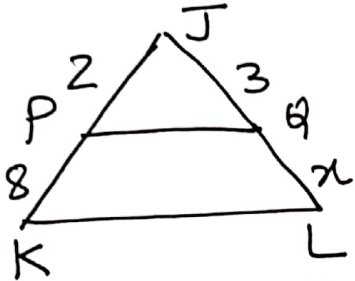
04.



$$\frac{1.5}{3} = \frac{2.5}{x} \Rightarrow x = 5 \text{ cm} \quad (6)$$

Ans: B

05



$$\frac{2}{8} = \frac{3}{x} \Rightarrow x = 12$$

Ans: A

06

Similar by A.A.

Ans: C

07

Similar by SSS

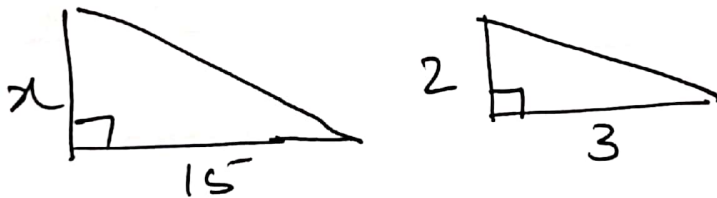
Ans: B

08

Similar by SAS

Ans: B

09



$$\frac{x}{15} = \frac{2}{3} \Rightarrow x = 10$$

Ans: C

10

Sides = 2:3

Areas = $(2)^2 : (3)^2 = 4:9$

Ans: C

JEE ADVANCED LEVEL

01.

Areas = 9:16

Sides = $\sqrt{9} : \sqrt{16} = 3:4$

Ans: A, C

02

We have $\frac{64}{100} = \frac{(8)^2}{x^2} \Rightarrow x = 10$ or $\sqrt{\frac{100 \times 64}{64}}$

Ans: A, C

03. Statement I: By A.A.A similarity (True) ⑦
Statement II: Conceptual (True) Ans: A

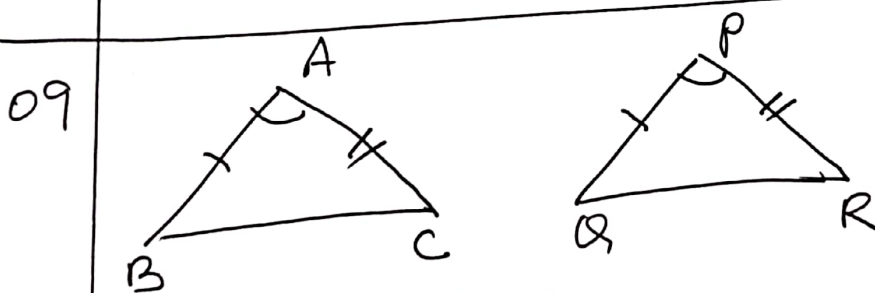
04. Statement I: Conceptual (False)
Statement II: Conceptual (True) Ans: C

05. Assertion: perimeter = 6:11
Areas = $6^2:11^2 = 36:121$ (True)
Reason: Conceptual (True) Ans: A

06. Assertion: Sides = 4:5
Areas = $4^2:5^2 = 16:25$ (True)
Reason: Conceptual (True) Ans: B

07. Conceptual Ans: B

08. AA (or) AAA similarity Ans: C



SAS similarity

Ans: B

10. $AB:PQ = 2:3$

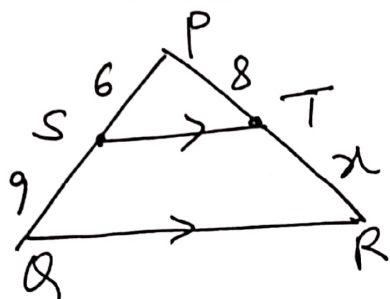
Ans: A

11

$$40^\circ + 70^\circ + \angle C = 180^\circ \Rightarrow \angle C = 70^\circ$$

Ans: 70° ②

12



$$\frac{6}{9} = \frac{8}{x} \Rightarrow x = 12$$

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

Ans: 12

13

a) ~~AA~~, SSS, SAS, AA, AAA (P, Q, R, S)b) $\Rightarrow$ AA, AAA (R, S)c) $\Rightarrow$ SAS, AA, AAA (Q, R, S)d) $\Rightarrow$ SSS (P)

14

a) AA/AAA (R)b) SSS (S)c) SAS (P)d) RHS (Q)Ans: R, S, P, Q $\Rightarrow$ THE END $\Leftarrow$