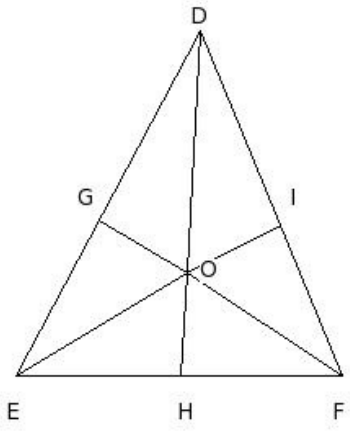
EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Similar Triangles

Grade : SSC Grade X

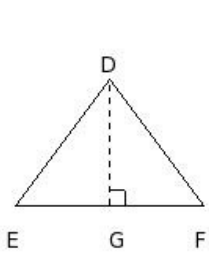
1. In the given figure, DEF is a triangle and 'O' is a point inside △DEF. The angular bisector of ∠EOD, ∠FOE & ∠DOF meet DE, EF & FD at G, H & I respectively . Then

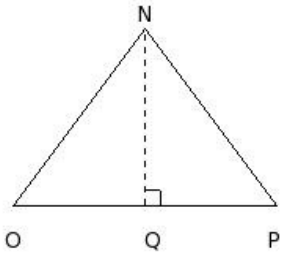


(i) DG . EH . FI = OD . OE . OF (ii) DG . EH . FI = GH . HI . IG (iii) DG . EH . FI = OG . OH . OI

(iv) DG . EH . FI = GE . HF . ID (v) DG . EH . FI = DE . EF . FD

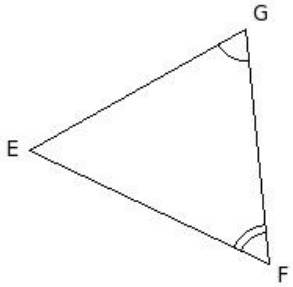
2. In the given figure, △DEF ~ △NOP and EF = 12 cm , OP = 16.8 cm and NQ = 11.2 cm , find the area of the △DEF

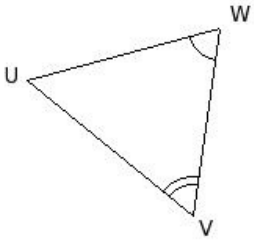




(i) 47.00 sq.cm (ii) 50.00 sq.cm (iii) 46.00 sq.cm (iv) 49.00 sq.cm (v) 48.00 sq.cm

3. Identify the property by which the two given triangles are similar





(i) SAS Similarity (ii) not similar (iii) AAA Similarity (iv) SSS Similarity

4. In the given figure, $\triangle CDE$, $CF \perp DE$. Which of the following are true?

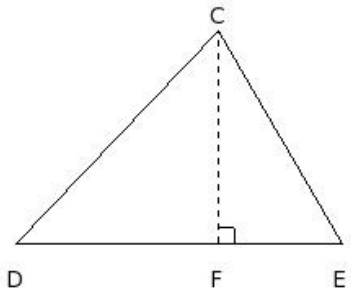
a) $CD^2 + CE^2 = DF^2 + EF^2$

b) $CD^2 - DF^2 = CE^2 - EF^2$

c) $CF^2 = 2\,DF\,.\,EF$

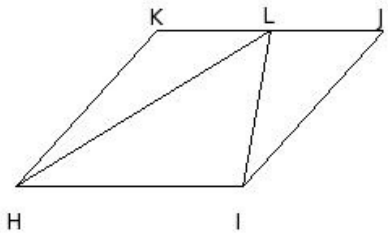
d) $CD^2 - CE^2 = DF^2 - EF^2$

e) $CD^2 + DF^2 = CE^2 + EF^2$



(i) {e,a,b} (ii) {b,d} (iii) {c,d} (iv) {c,d,b} (v) {a,b}

In the given figure, the parallelogram HIJK and the triangle $\triangle LHI$ are on the same bases and between the same
5. parallels.
The area of the $\triangle LHI$ is x sq.cm. The area of the parallelogram is



(i) twice the area of the triangle (ii) thrice the area of the triangle (iii) $\frac{3}{2}$ the area of the triangle

(iv) $\frac{4}{3}$ the area of the triangle (v) $\frac{5}{4}$ the area of the triangle

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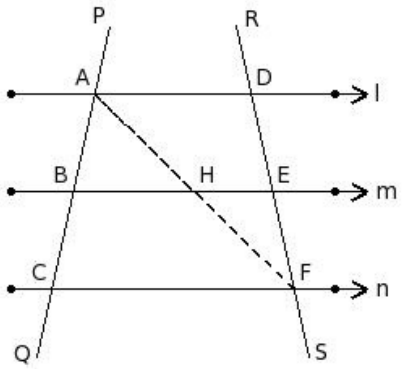
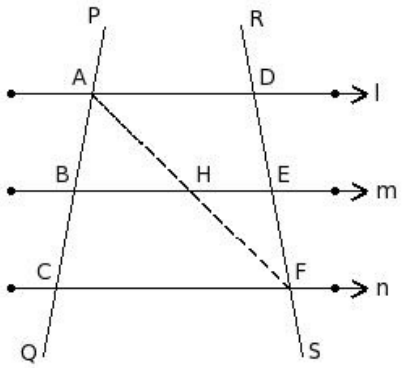
In the given figure, three lines l , m and n are such that l ∥ m ∥ n.
6. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively.
$\angle CFA$ =



(i) $\angle EHF$ (ii) $\angle BHA$ (iii) $\angle HFE$ (iv) $\angle AFD$ (v) $\angle DAF$

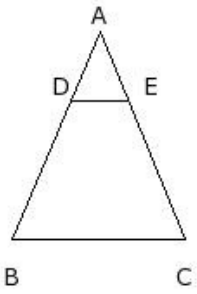
In the given figure, three lines l , m and n are such that l ∥ m ∥ n.

7. Two transversals PQ and RS intersect them at the points A , B , C and D , E , F respectively.
∠FDA =



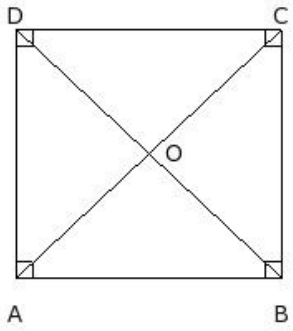
(i) ∠EHF (ii) ∠ACF (iii) ∠ABH (iv) ∠DAF (v) ∠FEH

8. In the given figure, $DE \parallel BC$. If $\frac{AD}{DB} = \frac{1}{2}$ and $AC = 13.6$ cm , find AE



(i) 3.53 cm (ii) 6.53 cm (iii) 4.53 cm (iv) 5.53 cm (v) 2.53 cm

9. In the given figure, O is a point in the interior of the rectangle ABCD. Then



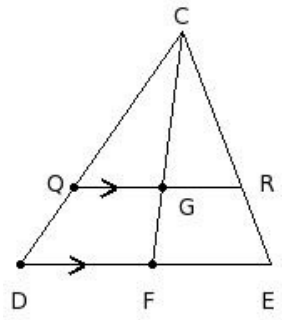
(i) $OA^2 - OC^2 = OB^2 - OD^2$ (ii) $OA^2 + OB^2 + OC^2 + OD^2 = AC^2 + BD^2$ (iii) $OA^2 + OC^2 = OB^2 + OD^2$

(iv) $OA^2 + OB^2 + OC^2 + OD^2 = AB^2 + BC^2 + CD^2 + DA^2$

10. In an equilateral triangle ABC, the side BC is trisected at D. Then

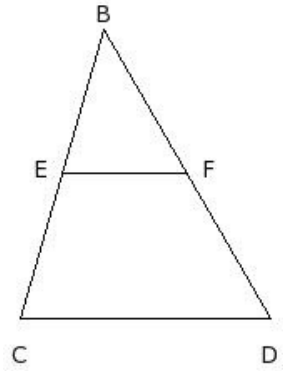
(i) $7\,AD^2 = 3\,AB^2$ (ii) $9\,AD^2 = 7\,AB^2$ (iii) $3\,AD^2 = 7\,AB^2$ (iv) $7\,AD^2 = 9\,AB^2$

11. In the given figure, QR ∥ DE , and median CF bisects QR. △CQG ~



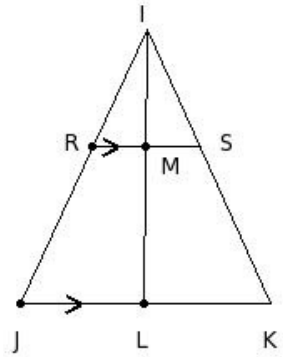
(i) △CDF (ii) △DEC (iii) △CDE (iv) △CGR (v) △CFE

12. In the given △BCD, EF ∥ CD. If BE : EC = 9 cm : 9 cm and BD = 20 cm, BF =



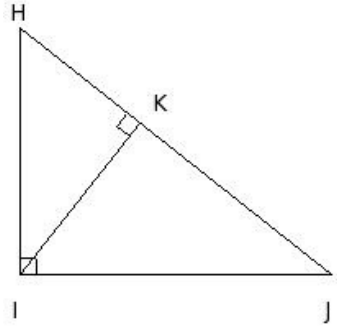
(i) 8.00 cm (ii) 9.00 cm (iii) 10.00 cm (iv) 12.00 cm (v) 11.00 cm

13. In the given figure, RS ∥ JK , and median IL bisects RS.
If IL = 16.4 cm, IK = 18 cm and IS = 7.71 cm, IM =



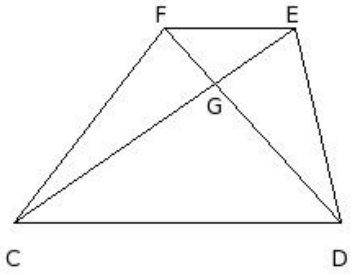
(i) 5.03 cm (ii) 6.03 cm (iii) 8.03 cm (iv) 9.03 cm (v) 7.03 cm

14. In the given figure, △HIJ is right-angled at I. Also, IK ⊥ HJ. If HI = 15 cm, IK = 11.77 cm, then find IJ.



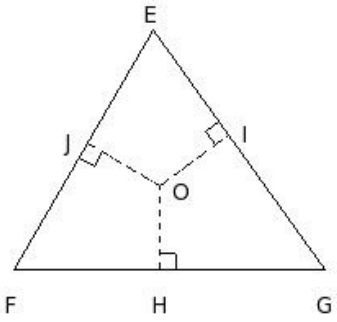
(i) 21.00 cm (ii) 18.00 cm (iii) 20.00 cm (iv) 19.00 cm (v) 17.00 cm

15. CDEF is a cyclic trapezium. Diagonals DF and CE intersect at G. If FC = 15 cm, find DE



(i) 15 cm (ii) 17 cm (iii) 14 cm (iv) 13 cm (v) 16 cm

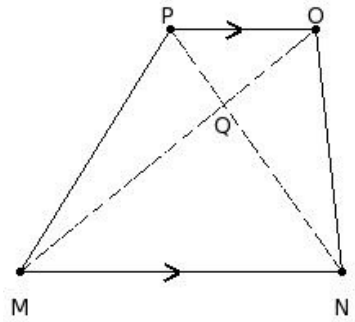
16. In the given figure, in △EFG, 'O' is a point inside the triangle. OH ⊥ FG, OI ⊥ EG and OJ ⊥ EF. Then



(i) $EJ^2 + FH^2 + GI^2 = EI^2 + GH^2 + FJ^2$ (ii) $EJ^2 + FH^2 + GI^2 = OH^2 + OI^2 + OJ^2$

(iii) $EJ^2 + FH^2 + GI^2 = OJ.OH + OH.OI + OI.OJ$ (iv) $EJ^2 + FH^2 + GI^2 = OE.OF + OF.OG + OG.OE$

17. In the given figure, MNOP is a trapezium in which $MN \parallel OP$ and the diagonals NP and MO intersect at Q.
If $QM = (2x+6)$ cm, $NQ = (2x+33)$ cm, $QO = (x+18)$ cm and $PQ = (x+36)$ cm, find the value of x



(i) (42,42) (ii) (44,42) (iii) (44,44) (iv) (43,43) (v) (42,41)

18. In the given figure, points K , L and M are the mid-points of sides IJ, JH and HI of △HIJ. Which of the following are true?

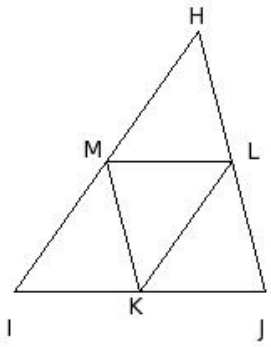
a) Area of $\triangle HIJ = \frac{1}{3}$ area of $\triangle KLM$

b) All four small triangles have equal areas

c) Area of trapezium IJLM is $\frac{1}{4}$ the area of $\triangle HIJ$

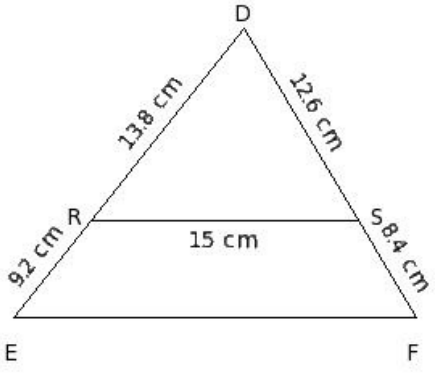
d) Area of trapezium IJLM is thrice the area of △HML

e) Area of △HIJ = 4 times area of △KLM



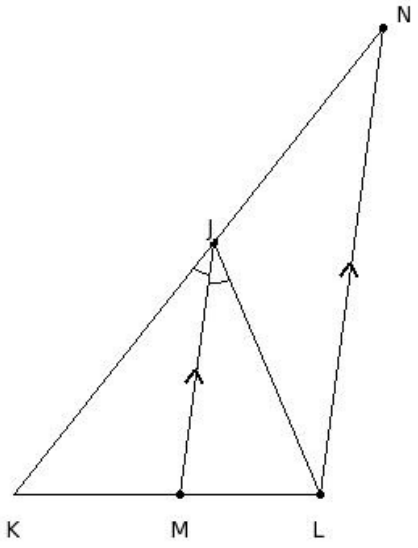
(i) {c,d} (ii) {a,b} (iii) {a,c,e} (iv) {a,b,d} (v) {b,d,e}

19. If the measures are as shown in the given figure, find EF



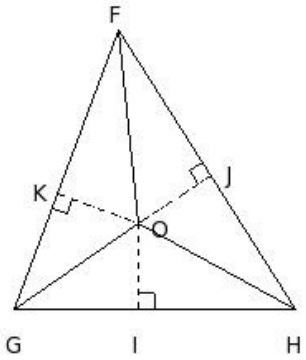
(i) 24.0 cm (ii) 23.0 cm (iii) 26.0 cm (iv) 27.0 cm (v) 25.0 cm

20. In the given figure, ∠MJK = ∠LJM and JM ∥ NL and JK = 20 cm, KM = 10 cm and ML = 9 cm. Find JN



(i) 18.00 cm (ii) 16.00 cm (iii) 19.00 cm (iv) 17.00 cm (v) 20.00 cm

21. In the given figure, in △FGH, 'O' is a point inside the triangle. OI ⊥ GH, OJ ⊥ FH and OK ⊥ FG. Then



(i) $FK^2 + GI^2 + HJ^2 = OF^2 + OG^2 + OH^2 + OI^2 + OJ^2 + OK^2$ (ii) $FK^2 + GI^2 + HJ^2 = OK^2 + OJ^2 + OI^2$

(iii) $FK^2 + GI^2 + HJ^2 = OF^2 + OG^2 + OH^2 - OI^2 - OJ^2 - OK^2$

(iv) $FK^2 + GI^2 + HJ^2 = FG^2 + IH^2 + HF^2 - GK^2 - HI^2 - JF^2$

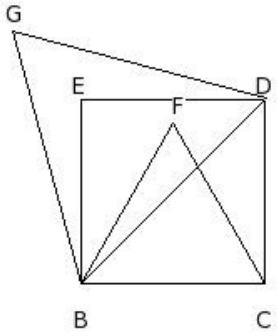
22. The altitude and area of an equilateral triangle of side 'a' is

(i) $\sqrt{3}$ a, $\frac{1}{2}\sqrt{3}$ a (ii) $\frac{1}{2}\sqrt{3}$ a, $\frac{1}{4}\sqrt{3}$ a^2 (iii) $\frac{1}{2}\sqrt{3}$ a, $\frac{1}{2}\sqrt{3}$ a^2 (iv) $\sqrt{3}$ a, $\frac{1}{2}\sqrt{3}$ a^2

23. A vehicle goes 13 km South and then 10 km East. How far is it from its starting point ?

(i) 16.40 km (ii) 18.40 km (iii) 14.40 km (iv) 17.40 km (v) 15.40 km

24. BCDE is a square and △BCF is an equilateral triangle. Also, △BDG is an equilateral triangle. If area of △BCF is 'a' sq.units, then the area of △BDG is



(i) a^2 sq.units (ii) $\sqrt{3}$ a sq.units (iii) 2a sq.units (iv) $\frac{1}{2}\sqrt{3}$ a sq.units (v) $\frac{1}{2}$ a sq.units

25. In the given figure, $\triangle CED$ is right-angled at E. S is the mid-point of CE and T is the mid-point of DE. Which of the following cases are true?

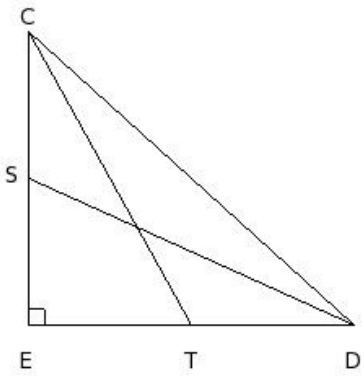
a) $4\,(CT^2 + DS^2) = 5\,CD^2$

b) $4\,CT^2 = 4\,DE^2 + CE^2$

c) $4\,CT^2 = 4\,CE^2 + DE^2$

d) $4\,DS^2 = 4\,CE^2 + DE^2$

e) $4\,DS^2 = 4\,DE^2 + CE^2$



(i) {a,c,e} (ii) {b,a} (iii) {b,a,c} (iv) {b,d,e} (v) {d,c}

Assignment Key

1) (iv)	2) (v)	3) (iii)	4) (ii)	5) (i)	6) (ii)
7) (v)	8) (iii)	9) (iii)	10) (ii)	11) (i)	12) (iii)
13) (v)	14) (iv)	15) (i)	16) (i)	17) (i)	18) (v)
19) (v)	20) (i)	21) (iii)	22) (ii)	23) (i)	24) (iii)
25) (i)					