EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Similarity

Grade : ICSE Grade IX

1. In the given figure, points P , Q and R are the mid-points of sides NO, OM and MN of △MNO. Which of the following are true?

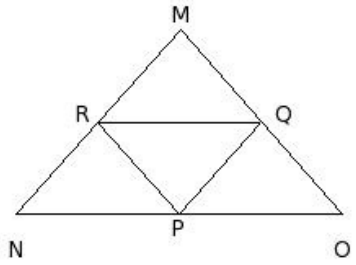
a) Area of trapezium NOQR is thrice the area of △MRQ

b) Area of △MNO = 4 times area of △PQR

c) All four small triangles have equal areas

d) Area of trapezium $NOQR$ is $\frac{1}{4}$ the area of △MNO

e) Area of △MNO = $\frac{1}{3}$ area of △PQR

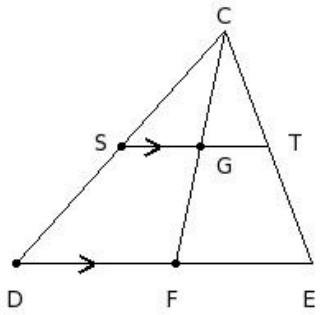


(i) {d,a,b} (ii) {d,a} (iii) {a,b,c} (iv) {e,b} (v) {d,e,c}

2. A model of a ship is made to a scale of 1 : 145. If length of the model ship is 14 m, calculate the length of the ship.

(i) 1910.00 m (ii) 2290.00 m (iii) 1900.00 m (iv) 2030.00 m (v) 2170.00 m

3. In the given figure, ST ∥ DE , and median CF bisects ST.
If CF = 14.4 cm, CE = 15 cm and CG = 7.2 cm, GF =



(i) 5.20 cm (ii) 7.20 cm (iii) 9.20 cm (iv) 6.20 cm (v) 8.20 cm

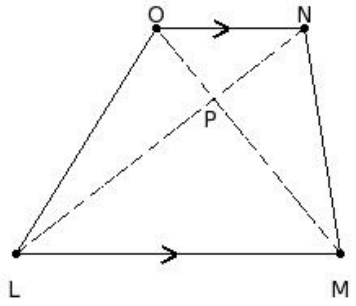
4. AB = 13.00 cm, BC = 7.00 cm are the measurements of a rectangular field of land ABCD on a map drawn to a scale of 1 : 15000. Calculate the diagonal distance of the field.

(i) 4.21 km (ii) 0.21 km (iii) 1.21 km (iv) 2.21 km (v) 3.21 km

5. If the ratio of the bases of two triangles is E : F and the ratio of the corresponding heights is G : H , the ratio of their areas in the same order is

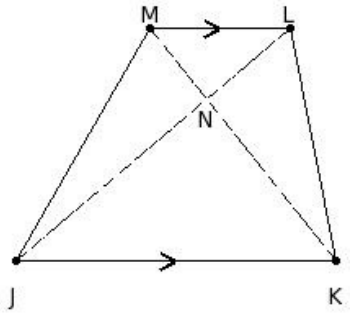
(i) EF : GH (ii) FG : EH (iii) EH : FG (iv) GH : EF (v) EG : FH

6. In the given figure, LMNO is a trapezium in which
LM ∥ NO and the diagonals MO and LN intersect at P.
If PL = (2x+14) cm, MP = (x+22) cm, PN = (x+37) cm and
OP = (x+9) cm, find the value of x



(i) (45,-14) (ii) (-16,42) (iii) (-13,43) (iv) (-16,43) (v) (-15,44)

7. In the given figure, JKLM is a trapezium in which
JK ∥ LM and the diagonals KM and JL intersect at N. △NLM ~



(i) △MJK (ii) △NMJ (iii) △KLM (iv) △NJK (v) △NKL

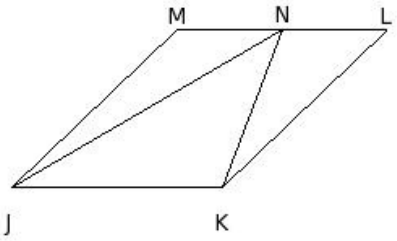
8. A triangle having an area 30.59 sq.cm is enlarged by a scale factor of 2.00. Find the area of its image.

(i) 148.38 sq.cm (ii) 134.38 sq.cm (iii) 97.38 sq.cm (iv) 122.38 sq.cm (v) 108.38 sq.cm

9. A rectangle having an area 238.00 sq.cm is enlarged such that the area of its image is 535.50 sq.cm. Find the scale factor.

(i) 9.5 (ii) 2.5 (iii) 1.5 (iv) 3.5 (v) 0.5

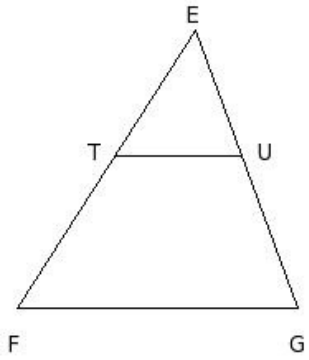
10. In the given figure, the parallelogram JKLM and the triangle △NJK are on the same bases and between the same parallels.
The area of the △NJK is x sq.cm. The area of the parallelogram is



(i) $\frac{5}{4}$ the area of the triangle (ii) $\frac{3}{2}$ the area of the triangle (iii) thrice the area of the triangle

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

11. In the given figure, $\triangle EFG$, TU ∥ FG such that area of $\triangle ETU$ = area of TUGF. Find $\frac{ET}{EF}$

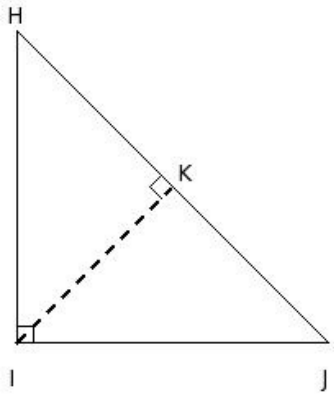


(i) $\frac{1}{2}\sqrt{\frac{1}{2}}$ (ii) $\frac{1}{2}\sqrt{\frac{4}{2}}$ (iii) $\frac{1}{2}\sqrt{2}$ (iv) 1 (v) $\frac{1}{2}\sqrt{4}$

12. The dimensions of the model of a multi-storey building are 7 cm × 9 cm × 8.5 cm. If the model is drawn to a scale of 1 : 150, find the floor area of a room of the building whose area in the model is 64 sq.cm.

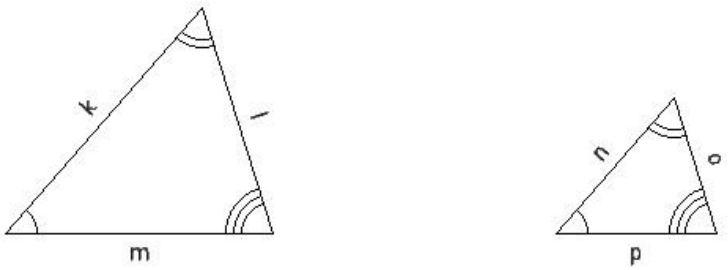
(i) 172.00 sq.m (ii) 131.00 sq.m (iii) 126.00 sq.m (iv) 144.00 sq.m (v) 150.00 sq.m

13. In the given figure, $\triangle HIJ$ is isosceles right-angled at I and IK ⊥ JH. ∠J =



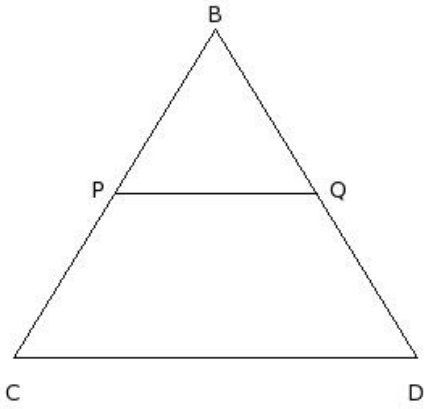
(i) ∠I (ii) ∠L (iii) ∠H (iv) ∠K (v) ∠M

14. In the given two similar triangles, if k = 19 cm, l = 15 cm, m = 17 cm, p = 10.2 cm, find n



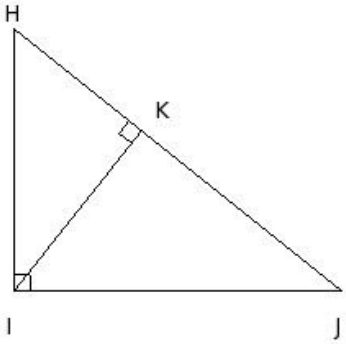
(i) 13.40 cm (ii) 12.40 cm (iii) 11.40 cm (iv) 9.40 cm (v) 10.40 cm

15. In the given figure, PQ ∥ CD and BP = 14.4 cm, PQ = 15 cm and CD = 25 cm, find BC



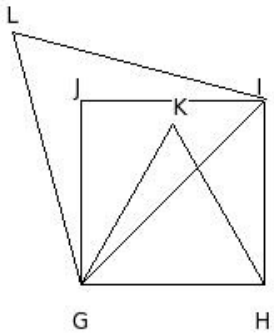
(i) 22.0 cm (ii) 26.0 cm (iii) 25.0 cm (iv) 23.0 cm (v) 24.0 cm

16. In the given figure, △HIJ is right-angled at I. Also, IK ⊥ HJ. If HK = 10 cm, IK = 12.49 cm, then find KJ.



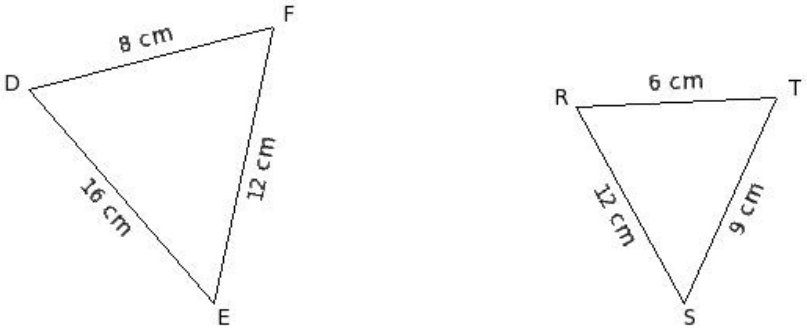
(i) 14.60 cm (ii) 15.60 cm (iii) 16.60 cm (iv) 17.60 cm (v) 13.60 cm

17. GHIJ is a square and △GHK is an equilateral triangle. Also, △GIL is an equilateral triangle. If area of △GHK is 'a' sq.units, then the area of △GIL is



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

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



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

19. Which of the following are necessary conditions for similarity of two polygons ?

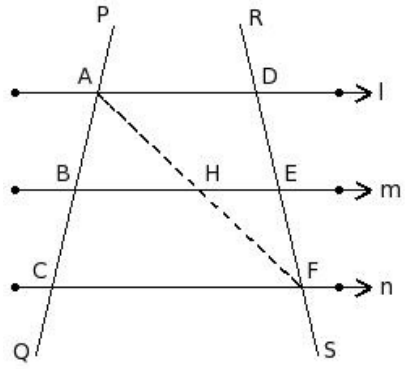
a) The corresponding sides are proportional.
b) The corresponding angles are equal.
c) The corresponding sides are equal.
d) The corresponding angles are proportional.

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

20. AB = 17.00 cm, BC = 11.00 cm are the measurements of a rectangular field of land ABCD on a map drawn to a scale of 1 : 11000. Calculate the area of the field.

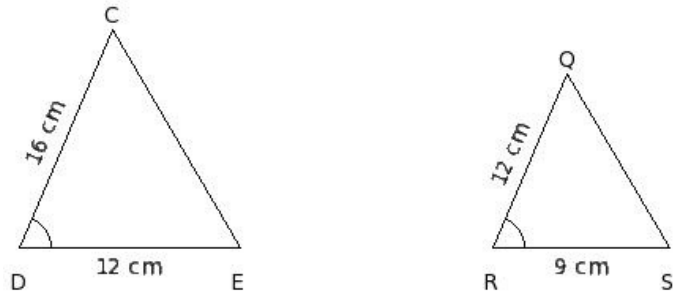
(i) 3.26 sq.km (ii) 4.26 sq.km (iii) 2.26 sq.km (iv) 0.26 sq.km (v) 1.26 sq.km

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



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

In the given figure, △CDE and △QRS are such that
22. $\angle D = \angle R$ and $\frac{CD}{QR} = \frac{DE}{RS}$.
Identify the property by which the two triangles are similar



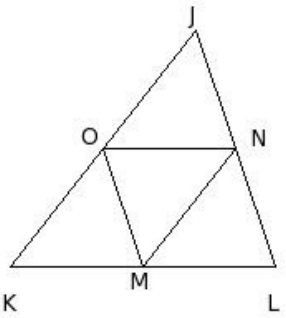
(i) AAA Similarity (ii) SAS Similarity (iii) not similar (iv) SSS Similarity

23. A model of a ship is made to a scale of 1 : 140. If the length of the ship is 2800 m, calculate length of the model ship.

(i) 20.00 m (ii) 17.00 m (iii) 25.00 m (iv) 15.00 m (v) 23.00 m

24. In the given figure, points M , N and O are the mid-points of sides KL, LJ and JK of △JKL. Which of the following are true?

a) △JON ~ △JKL
b) △OKM ~ △JKL
c) △MON ~ △JKL
d) △MNO ~ △JKL
e) △NML ~ △JKL



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

25. Which of the following are true?

a) Any two triangles are similar if the corresponding sides are proportional.
b) Any two quadrilaterals are similar if the corresponding angles are equal.
c) Any two triangles are similar if the corresponding angles are equal.
d) Any two quadrilaterals are similar if the corresponding sides are proportional.

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

Assignment Key

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