EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Similarity

Grade : ICSE Grade IX

1. Which of the following are true?

   a) Similarity is symmetric.
   b) Similarity is transitive.
   c) Similarity is reflexive.
   d) Similarity is anti symmetric.

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

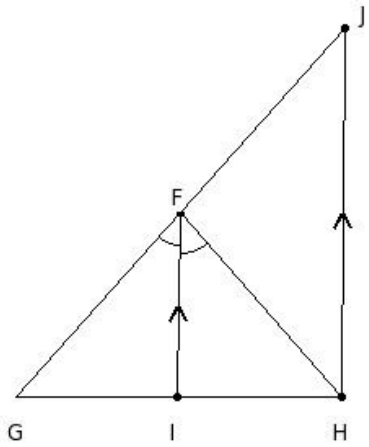
2. A rectangle having an area 48.00 sq.cm is reduced such that the area of its image is 12.00 sq.cm. Find the scale factor.

   (i) 0.5 (ii) 8.5 (iii) 2.5 (iv) 1.5 (v) 7.5

3. The perimeters of two similar triangles are 27 cm and 17 cm respectively. If one side of the first triangle is 11 cm, find the length of the corresponding side of the second triangle.

   (i) 8.93 cm (ii) 7.93 cm (iii) 5.93 cm (iv) 4.93 cm (v) 6.93 cm

4. In the given figure, ∠IFG = ∠HFI and FI ∥ JH and FG = 15 cm, GI = 10 cm and IH = 10 cm. Find FJ



   (i) 17.00 cm (ii) 16.00 cm (iii) 15.00 cm (iv) 13.00 cm (v) 14.00 cm

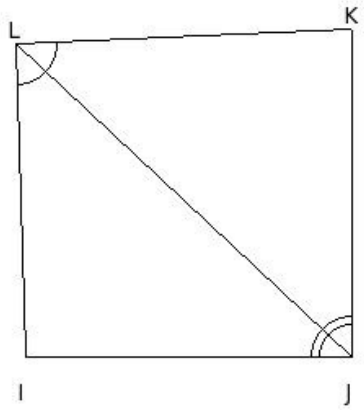
5. A triangle having an area 96.56 sq.cm is enlarged such that the area of its image is 312.85 sq.cm. Find the scale factor.

   (i) 1.8 (ii) 2.8 (iii) 9.8 (iv) 3.8 (v) 0.8

6. A model of building is made with a scale factor of 1 : 40. Find the volume of the tank on the top of the model if its actual volume is 5832000 cu.cm.

   (i) 90.12 cu.cm (ii) 92.12 cu.cm (iii) 91.12 cu.cm (iv) 93.12 cu.cm (v) 89.12 cu.cm

7. In the given figure, JL is the angular bisector of $\angle J \& \angle L$
$IJ = 20\ cm, JK = 20\ cm$ and $KL = 21\ cm$. Find LI



(i) 23.00 cm (ii) 20.00 cm (iii) 22.00 cm (iv) 21.00 cm (v) 19.00 cm

8. A model of a ship is made to a scale of 1 : 180. If the volume of the ship is 28652616000 cu.m, calculate the volume of the model ship.

(i) 4893.00 cu.m (ii) 4733.00 cu.m (iii) 4913.00 cu.m (iv) 5053.00 cu.m

9. In the given figure, △ACB is right-angled at C, CD ⊥ AB.
$AB = c, CB = a, AC = b$ and $CD = p$. Which of the following are true?

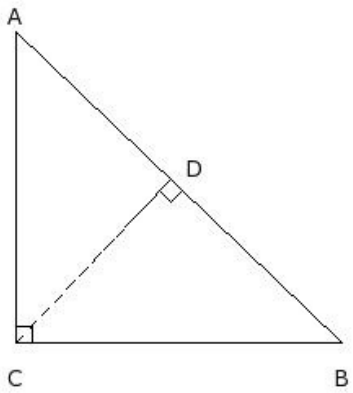
a) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{p^2}$

b) $ab = pc$

c) $a^2 + b^2 = c^2$

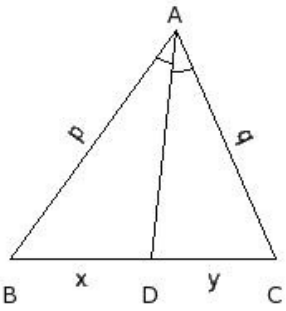
d) $\frac{1}{a^2} + \frac{1}{b^2} + \frac{1}{c^2} = \frac{1}{p^2}$

e) $\frac{1}{a^2} + \frac{1}{b^2} = \frac{1}{c^2} + \frac{1}{p^2}$



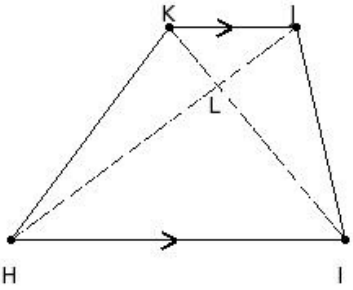
(i) {d,e,c} (ii) {d,a,b} (iii) {d,a} (iv) {e,b} (v) {a,b,c}

10. In the given figure, given ∠DAB = ∠CAD, x : y = 8.5 cm : 7.5 cm and q = 15 cm, find p =



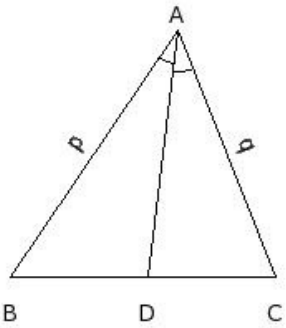
(i) 18.00 cm (ii) 15.00 cm (iii) 17.00 cm (iv) 16.00 cm (v) 19.00 cm

11. In the given figure, HIJK is a trapezium in which HI ∥ JK and the diagonals IK and HJ intersect at L. If LH = (6x+7) cm, IL = (7x+7) cm, LJ = (4x+9) cm and KL = (5x+5) cm, find the value of x



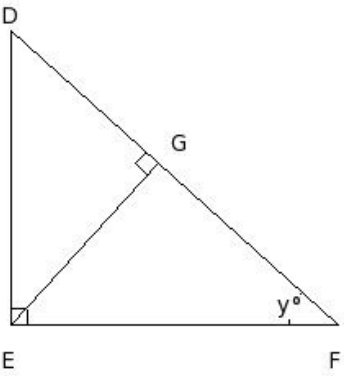
(i) (16,-1) (ii) (15,0) (iii) (14,-1) (iv) (14,-2) (v) (1,16)

12. In the given figure, given ∠DAB = ∠CAD, p = 8.47 cm, q = 7.53 cm and BC = 16 cm, find BD =



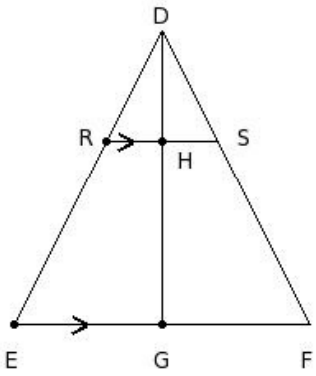
(i) 10.47 cm (ii) 9.47 cm (iii) 7.47 cm (iv) 8.47 cm (v) 6.47 cm

13. In the given figure, ∠GEF = 47.73°, find the value of y =



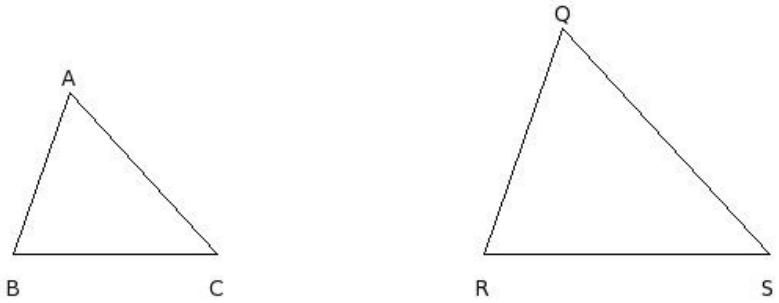
(i) 41.27° (ii) 42.27° (iii) 40.27° (iv) 44.27° (v) 43.27°

14. In the given figure, RS ∥ EF , and median DG bisects RS.
If DG = 17.8 cm, DF = 20 cm and DS = 7.5 cm, DH =



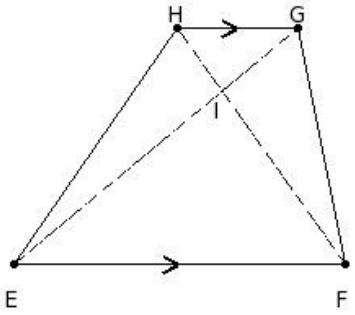
(i) 4.68 cm (ii) 5.68 cm (iii) 7.68 cm (iv) 8.68 cm (v) 6.68 cm

15. In the given figure, △ABC ~ △QRS and AB = 11 cm, QR = 15.4 cm.
If the area of the △QRS = 132.35 sq.cm, find the area of the △ABC



(i) 67.53 sq.cm (ii) 69.53 sq.cm (iii) 66.53 sq.cm (iv) 68.53 sq.cm (v) 65.53 sq.cm

16. In the given figure, EFGH is a trapezium in which
EF ∥ GH and the diagonals FH and EG intersect at I. △IEF ~



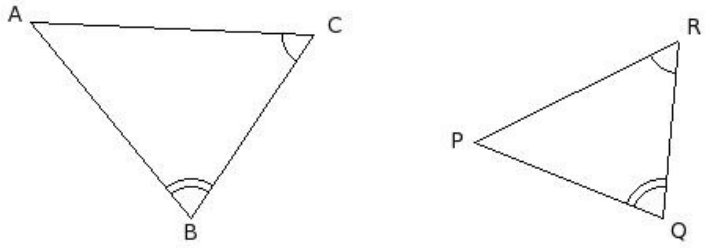
(i) △FGH (ii) △IFG (iii) △HEF (iv) △IHE (v) △IGH

17. Which of the following are true?

a) A triangle is a polygonal region.
b) A square is a polygonal region.
c) A semi-circle is a polygonal region.
d) A sector is a polygonal region.
e) A circle is a polygonal region.

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

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



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

19. The ratio of the bases of two triangles ABC and DEF is $8:10$.
If the triangles are equal in area, then the ratio of their heights is

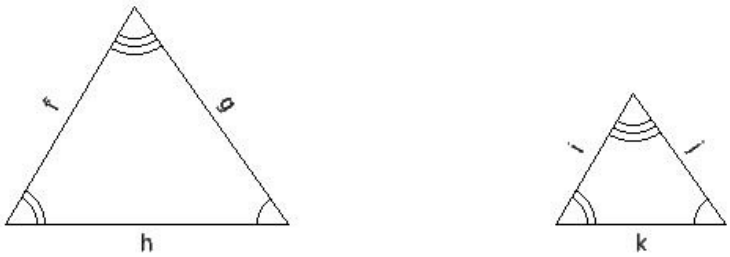
(i) $8:8$ (ii) $7:10$ (iii) $8:13$ (iv) $9:10$ (v) $10:8$

20. The dimensions of the model of a multi-storey building are 3 cm × 8 cm × 6 cm. If the model is drawn to a scale of 1 : 150, find the actual dimensions of the building.

(i) 451 cm × 1200 cm × 900 cm (ii) 450 cm × 1200 cm × 901 cm (iii) 450 cm × 1201 cm × 900 cm

(iv) 451 cm × 1201 cm × 900 cm (v) 450 cm × 1200 cm × 900 cm

21. In the given two similar triangles, if f = 16 cm, g = 17 cm, h = 18 cm, k = 10.8 cm, find i



(i) 7.60 cm (ii) 9.60 cm (iii) 11.60 cm (iv) 10.60 cm (v) 8.60 cm

22. Which of the following are true?

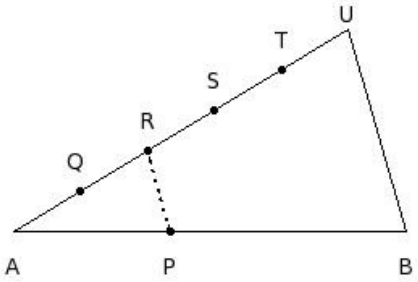
a) Any two quadrilaterals are similar if the corresponding angles are equal.
b) Any two triangles are similar if the corresponding sides are proportional.
c) Any two triangles are similar if the corresponding angles are equal.
d) Any two quadrilaterals are similar if the corresponding sides are proportional.

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

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

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

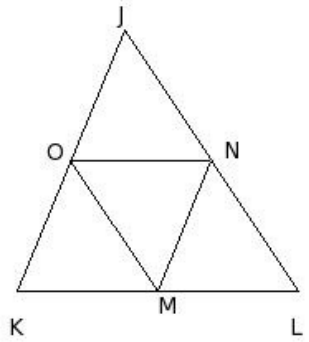
24. In the given figure, if A, Q, R, S, T, U are equidistant and RP ∥ UB and AB = 24 cm and AP = 10 cm. Find PB



(i) 15.00 cm (ii) 13.00 cm (iii) 16.00 cm (iv) 14.00 cm (v) 12.00 cm

25. 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) △MON ~ △JKL
c) △NML ~ △JKL
d) △MNO ~ △JKL
e) △OKM ~ △JKL



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

Assignment Key

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