EduSahara™ Assignment

Name : Similarity as a Size Transformation

Chapter : Similarity (As a Size Transformation)

Grade : ICSE Grade X

1. Which of the following are true?

   a) Any two circles are similar.
   b) Any two triangles are congruent.
   c) Any two squares are congruent.
   d) Any two squares are similar.
   e) Any two circles are congruent.
   f) Any two triangles are similar.

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

2. Which of the following are true?

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

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

3. Which of the following are true?

   a) Similar and congruent are not synonymous.
   b) Congruent figures have same area.
   c) If two figures are congruent, then they are similar too.
   d) Similar figures have same area.
   e) If two figures are similar, then they are congruent too.

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

4. Which of the following are true?

   a) Area of the union of two polygonal region is not equal to the sum of the individual area.
   b) Area of the union of two polygonal region is the sum of the individual area.
   c) A polygonal region can be divided into a finite number of triangles in a unique way.
   d) Area of a convex polygonal region is equal to the sum of the areas of all triangles formed by joining the vertices of the polygon with an interior point.

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

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

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

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

6. Which of the following are true?

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

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

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

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

8. The ratio of the bases of two triangles ABC and DEF is $4:6$.
If the triangles are equal in area, then the ratio of their heights is

(i) $5:6$ (ii) $3:6$ (iii) $6:4$ (iv) $4:9$ (v) $4:4$

9. △ABC is a triangle with sides BC = 13 cm, CA = 14 cm and AB = 11 cm. △ABC is reduced to △A'B'C' such that the smallest side of △A'B'C' is 4.71 cm. Find the scale factor.

(i) $\frac{3}{7}$ (ii) $\frac{1}{7}$ (iii) $\frac{1}{3}$ (iv) $\frac{5}{7}$ (v) $\frac{3}{5}$

10. △ABC is a triangle with sides BC = 11 cm, CA = 15 cm and AB = 14 cm. △ABC is enlarged to △A'B'C' such that the smallest side of △A'B'C' is 66 cm. Find the corresponding lengths of the enlarged triangle △A'B'C'.

(i) 65 cm, 89 cm, 83 cm (ii) 68 cm, 92 cm, 86 cm (iii) 67 cm, 91 cm, 85 cm (iv) 66 cm, 90 cm, 84 cm

(v) 64 cm, 88 cm, 82 cm

11. AB = 15.00 cm, BC = 12.00 cm are the measurements of a rectangular field of land ABCD on a map drawn to a scale of 1 : 25000. Calculate the diagonal distance of the field.

(i) 4.80 km (ii) 6.80 km (iii) 3.80 km (iv) 2.80 km (v) 5.80 km

12. AB = 11.00 cm, BC = 10.00 cm are the measurements of a rectangular field of land ABCD on a map drawn to a scale of 1 : 5000. Calculate the area of the field.

(i) 2.27 sq.km (ii) 0.28 sq.km (iii) 7.28 sq.km (iv) 8.28 sq.km (v) 1.27 sq.km

13. The measurements of a triangular field △ABC are BC = 11 cm, AB = 13 cm and ∠ABC = 90° on a map drawn to a scale of 1 : 16000. Calculate the actual length of CA in km.

(i) 3.72 km (ii) 0.72 km (iii) 2.72 km (iv) 1.72 km (v) 4.72 km

14. The measurements of a triangular field △ABC are BC = 8 cm, AB = 14 cm and ∠ABC = 90° on a map drawn to a scale of 1 : 19000. Calculate the actual area of the plot in sq.km.

(i) 1.02 sq.km (ii) 0.02 sq.km (iii) 2.02 sq.km (iv) 3.02 sq.km (v) 4.02 sq.km

15. A triangle having an area 17.32 sq.cm is reduced by a scale factor of 0.71. Find the area of its image.

(i) 10.73 sq.cm (ii) 8.73 sq.cm (iii) 9.73 sq.cm (iv) 7.73 sq.cm (v) 6.73 sq.cm

16. A triangle having an area 101.67 sq.cm is reduced such that the area of its image is 45.64 sq.cm. Find the scale factor.

(i) 0.67 (ii) 2.67 (iii) 7.67 (iv) 1.67 (v) 8.67

17. A rectangle having an area 380.00 sq.cm is reduced by a scale factor of 0.67. Find the area of its image.

(i) 186.58 sq.cm (ii) 165.58 sq.cm (iii) 178.58 sq.cm (iv) 142.58 sq.cm (v) 170.58 sq.cm

18. A rectangle having an area 96.00 sq.cm is enlarged such that the area of its image is 159.75 sq.cm. Find the scale factor.

(i) 0.29 (ii) 9.29 (iii) 2.29 (iv) 3.29 (v) 1.29

19. A model of a ship is made to a scale of 1 : 200. If length of the model ship is 17 m, calculate the length of the ship.

(i) 3520.00 m (ii) 3270.00 m (iii) 3560.00 m (iv) 3400.00 m (v) 3120.00 m

20. A model of a ship is made to a scale of 1 : 80. If the length of the ship is 960 m, calculate length of the model ship.

(i) 15.00 m (ii) 9.00 m (iii) 7.00 m (iv) 12.00 m (v) 17.00 m

21. A model of a ship is made to a scale of 1 : 180. If the area of the deck of the model ship is 49 sq.m, calculate the area of the deck of the ship.

(i) 1827600.00 sq.m (ii) 1707600.00 sq.m (iii) 1587600.00 sq.m (iv) 1327600.00 sq.m

(v) 1457600.00 sq.m

22. A model of a ship is made to a scale of 1 : 55. If the area of the deck of the ship is 592900 sq.m, calculate the area of the deck of the model ship.

(i) 171.00 sq.m (ii) 196.00 sq.m (iii) 210.00 sq.m (iv) 179.00 sq.m (v) 214.00 sq.m

23. A model of a ship is made to a scale of 1 : 85. If the volume of the model ship is 6859 cu.m, calculate the volume of the ship.

(i) 4212283375.00 cu.m (ii) 4199283375.00 cu.m (iii) 4230283375.00 cu.m (iv) 4226283375.00 cu.m

(v) 4204283375.00 cu.m

24. A model of a ship is made to a scale of 1 : 175. If the volume of the ship is 3906984375 cu.m, calculate the volume of the model ship.

(i) 704.00 cu.m (ii) 711.00 cu.m (iii) 729.00 cu.m (iv) 753.00 cu.m (v) 746.00 cu.m

25. The dimensions of the model of a multi-storey building are 6.5 cm × 8.5 cm × 5.5 cm. If the model is drawn to a scale of 1 : 85, find the actual dimensions of the building.

(i) 552.5 cm × 722.5 cm × 468.5 cm (ii) 552.5 cm × 722.5 cm × 467.5 cm

(iii) 552.5 cm × 723.5 cm × 467.5 cm (iv) 553.5 cm × 723.5 cm × 467.5 cm

(v) 553.5 cm × 722.5 cm × 467.5 cm

26. The dimensions of the model of a multi-storey building are 3 cm × 9.5 cm × 9.5 cm. If the model is drawn to a scale of 1 : 180, find the floor area of a room of the building whose area in the model is 81 sq.cm.

(i) 278.44 sq.m (ii) 274.44 sq.m (iii) 262.44 sq.m (iv) 240.44 sq.m (v) 247.44 sq.m

27. The dimensions of the model of a multi-storey building are 9 cm × 7 cm × 4 cm. If the model is drawn to a scale of 1 : 50, find the volume of the room in the model whose actual volume is 3.375 cu.m.

(i) 24.00 cu.cm (ii) 27.00 cu.cm (iii) 22.00 cu.cm (iv) 30.00 cu.cm (v) 32.00 cu.cm

28. A model of building is made with a scale factor of 1 : 40. Find the actual height of the building if the height of the model is 6.5 cm.

(i) 3.60 m (ii) 1.60 m (iii) 4.60 m (iv) 2.60 m (v) 0.60 m

29. A model of building is made with a scale factor of 1 : 80. Find the volume of the tank on the top of the model if its actual volume is 512000000 cu.cm.

(i) 1002.00 cu.cm (ii) 1001.00 cu.cm (iii) 999.00 cu.cm (iv) 998.00 cu.cm (v) 1000.00 cu.cm

Assignment Key

1) (i)	2) (iii)	3) (i)	4) (v)	5) (iv)	6) (iii)
7) (v)	8) (iii)	9) (i)	10) (iv)	11) (i)	12) (ii)
13) (iii)	14) (iii)	15) (ii)	16) (i)	17) (v)	18) (v)
19) (iv)	20) (iv)	21) (iii)	22) (ii)	23) (i)	24) (iii)
25) (ii)	26) (iii)	27) (ii)	28) (iv)	29) (v)	