



1. Which of the following are true?

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

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

2. Which of the following are true?

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

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

3. Which of the following are true?

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

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

4. Which of the following are true?

- a) A polygonal region can be divided into a finite number of triangles in a unique way.
- b) 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.
- c) Area of the union of two polygonal region is not equal to the sum of the individual area.
- d) Area of the union of two polygonal region is the sum of the individual area.

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

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

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

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

6. Which of the following are true?

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

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

7. Which of the following are true?

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

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

8. The ratio of the bases of two triangles ABC and DEF is 5:4 .

If the triangles are equal in area, then the ratio of their heights is

(i) 5:7 (ii) 4:5 (iii) 6:4 (iv) 5:2 (v) 4:4

9.  $\triangle ABC$  is a triangle with sides  $BC = 15$  cm,  $CA = 14$  cm and  $AB = 12$  cm.  $\triangle ABC$  is enlarged to  $\triangle A'B'C'$  such that the smallest side of  $\triangle A'B'C'$  is 16.8 cm. Find the scale factor.

(i)  $\frac{7}{3}$  (ii)  $\frac{9}{5}$  (iii)  $\frac{7}{5}$  (iv) 1

10.  $\triangle ABC$  is a triangle with sides  $BC = 13$  cm,  $CA = 15$  cm and  $AB = 11$  cm.  $\triangle ABC$  is enlarged to  $\triangle A'B'C'$  such that the smallest side of  $\triangle A'B'C'$  is 25.67 cm. Find the corresponding lengths of the enlarged triangle  $\triangle A'B'C'$ .

(i) 28.33 cm, 33 cm, 23.67 cm (ii) 31.33 cm, 36 cm, 26.67 cm (iii) 29.33 cm, 34 cm, 24.67 cm  
(iv) 32.33 cm, 37 cm, 27.67 cm (v) 30.33 cm, 35 cm, 25.67 cm

11.  $AB = 14.00$  cm,  $BC = 7.00$  cm are the measurements of a rectangular field of land ABCD on a map drawn to a scale of 1 : 5000. Calculate the diagonal distance of the field.

(i) 7.78 km (ii) 8.78 km (iii) 1.78 km (iv) 0.78 km (v) 2.78 km

12.  $AB = 15.00$  cm,  $BC = 6.00$  cm are the measurements of a rectangular field of land ABCD on a map drawn to a scale of 1 : 10000. Calculate the area of the field.

(i) 8.90 sq.km (ii) 7.90 sq.km (iii) 0.90 sq.km (iv) 1.90 sq.km (v) 2.90 sq.km

13. The measurements of a triangular field  $\triangle ABC$  are  $BC = 14$  cm,  $AB = 12$  cm and  $\angle ABC = 90^\circ$  on a map drawn to a scale of 1 : 16000. Calculate the actual length of CA in km.

(i) 3.95 km (ii) 2.95 km (iii) 0.95 km (iv) 1.95 km (v) 4.95 km

14. The measurements of a triangular field  $\triangle ABC$  are  $BC = 5$  cm,  $AB = 7$  cm and  $\angle ABC = 90^\circ$  on a map drawn to a scale of 1 : 15000. Calculate the actual area of the plot in sq.km.

(i) 7.39 sq.km (ii) 8.39 sq.km (iii) 2.39 sq.km (iv) 0.39 sq.km (v) 1.39 sq.km

15. A triangle having an area 39.69 sq.cm is reduced by a scale factor of 0.71. Find the area of its image.

(i) 25.01 sq.cm (ii) 15.01 sq.cm (iii) 23.01 sq.cm (iv) 20.01 sq.cm (v) 17.01 sq.cm

16. A triangle having an area 73.48 sq.cm is reduced such that the area of its image is 58.21 sq.cm. Find the scale factor.  
(i) 0.89 (ii) 1.89 (iii) 8.89 (iv) 2.89 (v) 7.89
17. A rectangle having an area 204.00 sq.cm is reduced by a scale factor of 0.80. Find the area of its image.  
(i) 115.56 sq.cm (ii) 118.56 sq.cm (iii) 157.56 sq.cm (iv) 144.56 sq.cm (v) 130.56 sq.cm
18. A rectangle having an area 280.00 sq.cm is enlarged such that the area of its image is 2520.00 sq.cm. Find the scale factor.  
(i) 3 (ii) 2 (iii) 5 (iv) 4 (v) 1
19. A model of a ship is made to a scale of 1 : 185. If length of the model ship is 16 m, calculate the length of the ship.  
(i) 2780.00 m (ii) 3190.00 m (iii) 2960.00 m (iv) 2990.00 m (v) 2800.00 m
20. A model of a ship is made to a scale of 1 : 135. If the length of the ship is 1620 m, calculate length of the model ship.  
(i) 15.00 m (ii) 17.00 m (iii) 12.00 m (iv) 9.00 m (v) 7.00 m
21. A model of a ship is made to a scale of 1 : 150. If the area of the deck of the model ship is 36 sq.m, calculate the area of the deck of the ship.  
(i) 825000.00 sq.m (ii) 797000.00 sq.m (iii) 834000.00 sq.m (iv) 810000.00 sq.m
22. A model of a ship is made to a scale of 1 : 185. If the area of the deck of the ship is 4141225 sq.m, calculate the area of the deck of the model ship.  
(i) 138.00 sq.m (ii) 121.00 sq.m (iii) 104.00 sq.m (iv) 137.00 sq.m (v) 96.00 sq.m
23. A model of a ship is made to a scale of 1 : 50. If the volume of the model ship is 3375 cu.m, calculate the volume of the ship.  
(i) 421875000.00 cu.m (ii) 449875000.00 cu.m (iii) 414875000.00 cu.m (iv) 436875000.00 cu.m  
(v) 405875000.00 cu.m
24. A model of a ship is made to a scale of 1 : 95. If the volume of the ship is 54872000 cu.m, calculate the volume of the model ship.  
(i) 61.00 cu.m (ii) 67.00 cu.m (iii) 64.00 cu.m (iv) 59.00 cu.m (v) 69.00 cu.m
25. The dimensions of the model of a multi-storey building are 10 cm  $\times$  1 cm  $\times$  2 cm. If the model is drawn to a scale of 1 : 80, find the actual dimensions of the building.  
(i) 800 cm  $\times$  80 cm  $\times$  160 cm (ii) 800 cm  $\times$  81 cm  $\times$  160 cm (iii) 801 cm  $\times$  81 cm  $\times$  160 cm  
(iv) 800 cm  $\times$  80 cm  $\times$  161 cm (v) 801 cm  $\times$  80 cm  $\times$  160 cm
26. The dimensions of the model of a multi-storey building are 10 cm  $\times$  7 cm  $\times$  9.5 cm. If the model is drawn to a scale of 1 : 170, find the floor area of a room of the building whose area in the model is 324 sq.cm.  
(i) 940.36 sq.m (ii) 931.36 sq.m (iii) 920.36 sq.m (iv) 964.36 sq.m (v) 936.36 sq.m
27. The dimensions of the model of a multi-storey building are 2.5 cm  $\times$  3 cm  $\times$  1 cm. If the model is drawn to a scale of 1 : 200, find the volume of the room in the model whose actual volume is 54872 cu.m.  
(i) 6689.00 cu.cm (ii) 7019.00 cu.cm (iii) 6859.00 cu.cm (iv) 6909.00 cu.cm

28. A model of building is made with a scale factor of 1 : 60. Find the actual height of the building if the height of the model is 6 cm.
- (i) 3.60 m (ii) 4.60 m (iii) 5.60 m (iv) 2.60 m (v) 1.60 m
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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 1728000 cu.cm.
- (i) 5.38 cu.cm (ii) 3.38 cu.cm (iii) 1.38 cu.cm (iv) 4.38 cu.cm (v) 2.38 cu.cm

## Assignment Key

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