9TH CLASS • MATHEMATICS

Math Review Exercise 9

Similarity of Polygons, Solids & Regular Polygon Properties

30	2
Total MCQs	Practice Sets

Part (a) — Choose the Correct Option

Similar Polygons, Solids & Regular Polygon Properties

1 **If two polygons are similar, then:**

A. Their corresponding angles are equal.
B. Their areas are equal.
C. Their volumes are equal.
D. Their corresponding sides are equal.

2 **The ratio of the areas of two similar polygons is:**

A. Equal to the ratio of their perimeters.
B. Equal to the square of the ratio of their corresponding sides.
C. Equal to the cube of the ratio of their corresponding sides.
D. Equal to the sum of their corresponding sides.

3 **If the volume of two similar solids is 125 cm^3 and 27 cm^3, the ratio of their corresponding heights is:**

A. 3 : 5
B. 5 : 3
C. 25 : 9
D. 9 : 25

4 **The exterior angle of a regular pentagon is:**

A. 40°
B. 45°
C. 60°
D. 72°

5 **A parallelogram has an area of 64 cm^2 and a similar parallelogram has an area of 144 cm^2. If a side of the smaller parallelogram is 8 cm, what is the corresponding side of the larger parallelogram?**

A. 10 cm
B. 12 cm
C. 18 cm
D. 16 cm

6 **The total number of diagonals in a polygon with 9 sides is:**

A. 18
B. 21
C. 25
D. 27

7 **Two spheres are similar, and their radii are in the ratio 4 : 5. If the surface area of the larger sphere is 500π cm^2, what is the surface area of the smaller sphere?**

A	256π cm^2	B	320π cm^2
C	400π cm^2	D	405π cm^2

8 **A regular polygon has an exterior angle of 30°. How many diagonals does the polygon have?**

A	54	B	90
C	72	D	108

9 **In a regular hexagon, the ratio of the length of a diagonal to the side length is:**

A	$\sqrt{3} : 1$	B	2 : 1
C	3 : 2	D	2 : 3

10 **A regular polygon has an interior angle of 165°. How many sides does it have?**

A	15	B	16
C	20	D	24

✓ Answer Key — Part (a)

1	2	3	4	5	6	7	8	9	10
a	b	b	d	b	d	b	a	b	d

Multiple Choice Questions — Additional

Similarity, Scale Factors, Polygons & Tessellations

1 **Which of the following is the symbol of similarity?**

A	■	B	≈
C	~	D	≅

2 **In similar figures, corresponding angles are congruent and corresponding sides are:**

A	congruent	B	parallel
C	perpendicular	D	proportional

3 **A ratio has:**

A	fixed value	B	no symbol
C	no unit	D	no importance

4 **The ratio of corresponding sides of similar figures is called:**

A	common factor	B	scale factor
C	grading factor	D	proportion

5 **The equality of two ratios is called:**

A	proper factor	B	scale factor
C	area factor	D	proportion

6 **Which of the following is the scale factor of area?**

A	K	B	K^2
C	2K	D	K^3

7 **If radii of two circles are in the ratio 2 : 3, then their surface areas are in the ratio:**

A	2 : 3	B	4 : 9
C	8 : 18	D	8 : 27

8 **If two spheres have volumes in the ratio 8 : 27, then their corresponding lengths are in the ratio:**

A	2 : 3	B	4 : 9
C	8 : 18	D	8 : 27

9 **The sum of interior angles of an n-sided polygon is:**

A	n × 180°	B	(n – 1) × 180°
C	(n – 2) + 180°	D	(n – 2) × 180°

10 **The measure of each interior angle of a regular n-sided polygon is:**

A	(n × 180°) / n	B	((n – 1) × 180°) / n
C	((n – 2) + 180°) / n	D	((n – 2) × 180°) / n

Multiple Choice Questions — Additional (continued)

Questions 11–20

11 The total number of diagonals from one vertex of an n-sided polygon is:

A	n(n – 1) / 2	B	n(n – 2) / 2
C	n(n – 3) / 2	D	n(n – 4) / 2

12 The sum of interior angles of which regular polygon is 1080°:

A	pentagon	B	hexagon
C	heptagon	D	octagon

13 Each interior angle of which regular polygon is 108°?

A	Square	B	Pentagon
C	Hexagon	D	Heptagon

14 For which regular polygon are the interior and exterior angles equal?

A	Square	B	Pentagon
C	Hexagon	D	Heptagon

15 The interior and exterior angles of a regular hexagon are in the ratio:

A	1 : 2	B	2 : 1
C	1 : 6	D	2 : 3

16 If the sum of interior angles of a regular polygon is 1440°, then the number of sides is:

A	8	B	10
C	12	D	14

17 Each interior angle of a regular pentagon is:

A	20°	B	108°
C	36°	D	72°

18 How many equilateral triangles are there in a regular hexagon?

A	4	B	5
C	6	D	8

19 **The area of a regular hexagon can be calculated by:**

A	$A = (6\sqrt{3} / 2) S^2$	B	$A = (3\sqrt{3} / 4) S^2$
C	$A = (3\sqrt{3} / 2) S^2$	D	$A = (6\sqrt{2} / 4) S^2$

20 **The repeating pattern of regular shapes is called:**

A	tessellation	B	oscillation
C	rotation	D	citation

✓ Answer Key — Additional MCQs

1	2	3	4	5	6	7	8	9	10
c	d	c	b	d	b	b	a	d	d
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
c	d	b	a	b	b	b	c	c	a