



## RAMAGYA SCHOOL, NOIDA

IX/MATHEMATICS/2017-18

### OLYMPIAD PRACTICE WORKSHEET

#### (Concept based)

1. If a triangle and a parallelogram are on the same base and between same parallels, then the ratio of the area of the triangle to the area of parallelogram is:

- (A) 1:4                      (B) 2:1                      (C) 1:2                      (D) 1:1

2. Three angles of a quadrilateral are equal and the fourth angle is equal to  $144^\circ$ . Find each of the equal angles of the quadrilateral.

- (A)  $72^\circ$                       (B)  $75^\circ$                       (C)  $65^\circ$                       (D)  $78^\circ$

3. D and E are points on sides AB and AC respectively of  $\triangle ABC$  such that area (DBC) = area (EBC). Which of following is true?

- (A) Area of triangle ABC =  $(1/2)$  Area of triangle DBC                      (B)  $DE = (1/2)BC$   
(C) Triangle DBC is congruent to triangle EBC                      (D)  $DE \parallel BC$

4. In a cylinder, radius is doubled and height is doubled, curved surface area will be?

- (A) become 2 times    (B) become 4 times    (C) remains same    (D) become  $1/2$  times

5. Two parallelograms are on equal bases and between the same parallels. The ratio of their areas is?

- (A) 1:4                      (B) 2:1                      (C) 1:2                      (D) 1:1

#### (Application based)

6. The dimensions of a cuboid are 50 cm x 40 cm x 10 cm. Its volume in litres is:

- (A) 10 litres                      (B) 20 litres                      (C) 40 litres                      (D) 30 litres

7. ABCD is a rectangle of Area  $40 \text{ cm}^2$ . X is any point on AB, What is the area of the triangle XCD?

- (A)  $10 \text{ cm}^2$                       (B)  $20 \text{ cm}^2$                       (C)  $40 \text{ cm}^2$                       (D) Insufficient data

8. The height of a cone is 16 cm and Slant height is 20 cm. Its radius is \_\_\_\_\_

- (A) 13 cm                      (B) 12 cm                      (C) 14 cm                      (D) 10 cm

9. The median of the triangle divides it into:

- (A) two triangle with equal area                      (B) right angle triangles  
(C) equilateral triangle                      (D) isosceles triangle

10. A Home chocolate maker has one spherical chocolate of radius 10cm. With the same amount of material, how many small sphere of chocolates of radius 2.5 cm can be made?

- (A) 16                      (B) 256                      (C) 64                      (D) None of these

**11. ABCD is a rectangle. EFGH are the mid points of the side. Area of the rectangle is  $40 \text{ cm}^2$ . The figure EFGH is ?**

- (A) Parallelogram with area  $30 \text{ cm}^2$  (B) Rhombus with area  $20 \text{ cm}^2$   
(C) square of the area  $25 \text{ cm}^2$  (D) Insufficient data

**12. Find the amount of water displaced by a solid spherical ball of diameter 4.2 cm, when it is completely immersed in water?**

- (A) 0.31 litres (B) 0.2 litres (C) 1 litres (D) None of these

**13. In a triangle ABC, E is the mid-point of median AD, which of the following is false?**

- (A) Area of triangle ABD =  $(1/2)$  Area of triangle ABC (B) Area of triangle BED =  $(1/4)$  Area of triangle ABC  
(C) Area of triangle ABE =  $(1/4)$  Area of triangle ABC (D) none of these

**14. The volumes of the two spheres are in the ratio 64 : 27. Find the ratio of their surface areas,**

- (A) 4:3 (B) 16:9 (C) 64:27 (D) None of these

### **(Value based)**

**15. The medians of the triangle ABC meet at point G, which of these is not true?**

- (A) Area of triangle AGC = Area of triangle BGC (B) Area of triangle AGC = Area of triangle AGB  
(C) Area of triangle AGC =  $(1/3)$  Area of triangle ABC (D) None of these

**16. A cube of side 42 cm contains a sphere touching its sides. Find the volume of the gap in between?**

- (A)  $35280 \text{ cm}^3$  (B)  $35286 \text{ cm}^3$  (C)  $34328 \text{ cm}^3$  (D) none of these

### **(Logical Reasoning)**

**17. Pointing to a gentleman, Deepak said, "His only brother is the father of my daughter's father." How is the gentleman related to Deepak?**

- (A) Grandfather (B) Brother-in-law (C) Uncle (D) Father

**18. In a certain code language, if the value of CONTRACT = 56 and 'GROWTH' = 30, then what is the value of DISTRIBUTION?**

- (A) 142 (B) 140 (C) 132 (D) 130

**19. After walking 6 kms, I turned right and travelled a distance of 2 kms, then turned left and covered a distance of 10 km. In the end I was moving towards the north. From which direction did I start my journey?**

- (A) North (B) South (C) South-West (D) North-East

**20. If  $4 \odot 5 = 189$  and  $10 \odot 8 = 1512$ , then  $6 \odot 9 =$**

- (A) 945 (B) 1148 (C) 983 (D) 764