



RAMAGYA SCHOOL, NOIDA
Mathematics olympiad worksheet
CLASS – VIII(2017-18)

(Concept based)

1. Which of the following values are equal?

- (P) 1^4 (Q) 4^0 (R) 0^4 (S) 4^1
(A) P and Q (B) Q and R (C) P and R (D) P and S

2. To reduce a rational number in its standard form, we divide its numerator and denominator by their _____

- (A) L.C.M (B) H.C.F (C) Product (D) Multiple

3. Find the square root of $6 + (115/289)$

- (A) 2.410 (B) 2.529 (C) 2.113 (D) 2.482

4. Which of the following expressions is true?

- (A) $0.09 > 7/8$ (B) $6\% < 0.09$ (C) $7/8 < 8.0 \times 10^{-3}$ (D) $8.0 \times 10^{-3} > 6\%$

5. Which of the following describes a square root of 41?

- (A) Between 5 and 6 (B) Between 6 and 7 (C) Between 20 and 21 (D) Between 40 and 42

6. Closure property for rational numbers is satisfied in case of _____

- (A) Additional (B) Subtraction (C) Multiplication (D) All of these

(Application based)

7. If $3^{x-1} + 3^{x+1} = 90$, then x is equal to _____.

- (A) 1 (B) 3 (C) 2 (D) 0

8. The value of $(9/4)^{1/2} \times (4/3)^2 + 1 \div (27/8)^{1/3}$ is _____.

- (A) $10/3$ (B) $11/6$ (C) $4/3$ (D) $11/2$

9. The difference between smallest 4-digit perfect square and greatest 4-digit perfect square is

- (A) 8777 (B) 1012 (C) 9801 (D) 7777

10. If $4^x + 4^x = 1/512$, then what is the value of $-3/x$?

- (A) 0.50 (B) 0.75 (C) -0.75 (D) -4.25

HOTS

11. The simplest value of $\frac{2(3^{n+1}) + 7(3^{n-1})}{(3^{n+2}) - 2(1/3)^{1-n}}$ is

- (A) 1 (B) 3 (C) -1 (D) 0

12. If $21998 - 21997 - 21996 + 21995 = K \cdot 21995$, then the value of K is _____ .

- (A) 1 (B) 2 (C) 3 (D) 4

13. There are 86,400 seconds in a day. How many days long is a second? Express your answer in scientific notation upto 3 decimal places.

- (A) 1.157×10^{-6} (B) 1.234×10^{-5} (C) 1.157×10^{-5} (D) 1.432×10^{-4}

14. One fruit salad requires $\frac{1}{2}$ cup of sugar. Another recipe for the same fruit salad requires 2 tablespoons of sugar. If 1 tablespoon is equivalent to $\frac{1}{16}$ cup, how much more sugar does the first recipe require?

- (A) $\frac{4}{5}$ cup (B) $\frac{6}{5}$ cup (C) $\frac{3}{8}$ cup (D) $\frac{5}{8}$ cup

(Value based)

15. In the morning batch at a school we have observed that when five students took seat on each bench, 4 students remained unseated. But when eleven students took seat per bench, 4 benches remained vacant. The numbers of students in the morning batch were?

- (A) 55 (B) 48 (C) 26 (D) 44

16. Mrs. Priya earns Rs. 18,000 per month. She spends $\frac{7}{12}$ on household items and $\frac{1}{8}$ on rest of the things. The amount she saves is _____.

- (A) Rs. 7120 (B) Rs. 5250 (C) Rs. 5520 (D) 6562.5

Logical Reasoning

17. Introducing a man, a woman says, "His wife is the only daughter of my father". How is the man related to the woman?

- (A) Brother (B) Father-in-law (C) Maternal uncle (D) Husband

18. P, Q, and R are three cities on a map. P is north of Q and angle PQR is 45° in clockwise direction. In what direction is R from Q?

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

19. If the first half of the English alphabet series is written in reverse order, then which letter should be 8th letter to the left of 14th letter from the right end?

- (A) E (B) G (C) F (D) I

20. If in a certain code '56431' is written as 'RSHTU' and '98270' as 'MLKPA', then how will '9517' be written in the same code?

- (A) MURP (B) MRUP (C) MRPU (D) MRPT