CHAITANYA CENTRAL SCHOOL
Yenugonda, Mahabubnagar
Assignment – 2023-24

Class:X Date:24-04-2023
Subject: Mathematics

1.Prove that $\sqrt{2}$ is an irrational number.

2. Find the HCF and LCM of 12, 15, 18, 27.

3. Give an example of two irrationals whose sum is rational.

4. Find the prime factorization of 4620.

5. Find the largest number which divides 546 and 764 leaving reminders 6 and 8 respectively.

6. Find the simplest form of $\frac{148}{185}$

7. Show that any number of the form 4^n, $n \in N$ can never end with the digit o.

8. The HCF of two numbers is 27 and their LCM is 162. If one of the numbers is 81, find the other.

9. Find the decimal form of $0.\overline{68} + 0.\overline{73}$.

10. Simplify:

(a) $\sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$ (b) $\sqrt[4]{81} - 8\sqrt[3]{216} + 15\sqrt[5]{32} + \sqrt{225}$

11. Rationalise the denominator:

(a) $\frac{3\sqrt{7}+5\sqrt{3}}{3\sqrt{7}+2\sqrt{3}}$ (b) $\frac{\sqrt{3}+\sqrt{11}}{3\sqrt{5}+7\sqrt{3}}$

12. Factorise:

(a) $x^2 + 6x + 8$ (b) $x^2 - 10x + 21$ (c) $x^2 + 6x - 16$ (d) $12x^2 - 7x + 1$

(e) $2x^2 + 7x + 3$ (f) $6x^2 + 5x - 6$ (g) $3x^2 - x - 4$

13.Expand using identity

(i)$(2a - 3b)^3$ (ii) $(3a - 7b - c)^2$

14. Solve for x:

(i) $\frac{x}{3} + 1 = \frac{7}{15}$ (ii) $\frac{7x+4}{x+2} = \frac{-4}{3}$

(iii) $15(x-4) - 2(x-9) + 5(x+6) = 0$ (iv) $\frac{x-5}{3} = \frac{x-3}{5}$

15. Draw the graph of:

(a) $5x - 3y + 10 = 0$ (b) $5x + 2y - 15 = 0$ (c) $y = x + 1$ (d) $x = 2y$

16. State different types of congruency rules on triangles. Define each of them.

17. State different types of triangles based on sides with an example.

18. State different types of triangles based on angles with an example.

19. Define:

(a) collinear points (b) non collinear points (c) congruent figures

20. State the properties of the following quadrilaterals

(a) Rectangle (b) Square (c) Parallelogram (d) Rhombus (e) Kite (f) Trapezium

21. Define cyclic quadrilateral. State its important property.

22. Write the formula for the area of

(a) Triangle (b) Parallelogram (c) Rhombus (d) Trapezium (e) Quadrilateral

23. Write the formula to find CSA and TSA of

(a) Cube (b) cuboid (c) Cylinder (d) Cone (d) Sphere (f) Hemisphere

24. Also find the volume of all the above figures.

25. Simplify:

(a) $(5-2x)(3+x)$ (b) $(a^2+5)(b^3+3)+5$

26. Simplify $(a+b+c)(a+b-c)$

27. State all the laws of exponents. Evaluate the following

(a) $\frac{25 X t^{-4}}{5^{-3} X 10 X t^{-8}}$ $(t \neq 0)$ (b) $\frac{3^{-5} X 10^{-5} X 125}{5^{-7} X 6^{-5}}$

28. Find the common factor of

(a) 10pq, 20qr, 30rp (b) $14pq, 28p^2q^2$ (c) $16x^3, -4x^2, 32x$

29. Factorise:

$a^2 - 2ab + b^2 - c^2$

30. Simplify :

$\frac{3}{7} + \frac{-6}{11} + \frac{-8}{21} + \frac{5}{22}$

31. Multiply $\frac{6}{13}$ by the reciprocal of $\frac{-7}{16}$

32. One angle of a parallelogram is 68^0. Find the measure of all the remaining angles.

33. Find the mean of first 20 prime numbers.

34. Define median and altitude of a triangle.

35. The angles of a quadrilateral are in the ratio 3:5:9:13. Find all the angles of a quadrilateral.

36. Define (a) Prime number (b) composite number (c) Twin primes (d) Co prime

37. Give an example to show that

(a) product of two irrationals is a rational number (b) Quotient of two irrationals is a rational

38. Define perimeter. Find the perimeter of a regular pentagon of side 5cm.

39. The circumference and area of a circle are numerically equal. Then find its radius.

40. The product of two consecutive integers is 306. Find them.

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