MATHEMATICS

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Board –	Class –	Topic – Real Number

1. Two tankers contain 850 litres and 680 litres of petrol respectively. Find the maximum capacity of a container which can measure the petrol of either tanker in exact number of times.

   Ans:- 170 litre

2. Find the value of: $(-1) + (-1)^{2n} + (-l)^{2n+1} + (-l)^{4n+1}$, where n is any positive odd integer.

   Ans:- 0

3. Find whether decimal expansion of 13/64 is a terminating or non-terminating decimal. If it terminates, find the number of decimal places its decimal expansion has.

   Ans:- terminate after six places of decimal

4. Apply Euclid's division algorithm to find HCF of numbers 4052 and 420.   **Ans:- 4**

5. Show that $(\sqrt{3}+\sqrt{5})^2$ is an irrational number.

6. Show that 9^n can not end with digit 0 for any natural number n.

7. If HCF of 144 and 180 is expressed in the form 13m – 3, find the value of m.   **Ans:- 3**

8. Show that any positive odd integer is of the form 4m + 1 or 4m + 3, where m is some integer.

9. Show that reciprocal of $3+2\sqrt{2}$ is an irrational number.

10. Find the HCF (865, 255) using Euclid's division lemma.   **Ans:- 5**

11. Find HCF of 65 and 117 and find a pair of integral values of m and n such that HCF = 65m + 117n.   **Ans:-** $HCF - 13; \ m = 2, n = -1$

12. Using Euclid's division algorithm, find whether the pair of numbers 847,2160 are coprimes or not.

13. The LCM of two numbers is 14 times their HCF. The sum of LCM and HCF is 600. If one number is 280, then find the other number.   **Ans:- 80**

14. An army contingent of 1000 members is to march behind an army band of 56 members in a parade. The two groups are to march in the same number of columns. What is the maximum number of columns in which they can march?   **Ans:- 8**

15. Prove that $2\sqrt{3} – 1$ is an irrational number.

16. Show that $5 + 3\sqrt{2}$ is an irrational number.

17. Find the least positive integer which when diminished by 5 is exactly divisible by 36 and 54.

   Ans:- 113

18. A rectangular courtyard is 18m 72 cm long and 13m 20cm broad. It is to be paved with square tiles of the same size. Find the least possible number of such tiles **Ans:- 4290**

19. Find the greatest number which divides 285 and 1249 leaving remainders 9 and 7 respectively.
Ans:- 138

20. Prove that one of any three consecutive positive integers must be divisible by 3.

21. If $\frac{p}{q}$ is a rational number($q \neq 0$) .What is the condition on q so that the decimal representation of $\frac{p}{q}$ is terminating? **Ans:-** Q is form of $2^n.5^m$ where n, m are non-negative integers

22. Write a rational number between $\sqrt{2}$ and $\sqrt{3}$ **Ans:-** 15

23. The decimal expansion of the rational no $\frac{43}{2^4,5^3}$ will terminate after how many of decimals?

Ans:- After 4 places of decimal

24. Find the (HCF $\times$ LCM) for the numbers 100 and 190 **Ans:-** 19000

25. State whether the number$(\sqrt{2} - \sqrt{3})(\sqrt{2} + \sqrt{3})$ is rational or irrational justify **Ans:-** Rational

26. Write one rational and one irrational number lying between 0.25 and 0.32.

Ans:- One rational no. $=0.26$, one irrational no. $= 0.27010010001$

27. Express 107 in the form of $4q + 3$ for some positive integer. **Ans:-** $4 \times 26 + 3$

28. Write whether the rational number$\frac{51}{100}$ will have a terminating decimal expansion or a Non-Terminating repeating decimal expansion. **Ans:-** Terminating.

29. Use Euclid's division algorithm to find the HCF of 1288 and 575. **Ans:-** 23

30. Check whether $5 \times 3 \times 11 + 11$ and $5 \times 7 \times 7 \times 3 + 3$ are composite number and justify.

Ans:- Composite number.

31. Check whether6^n can end with the digit 0, where n is any natural number.

Ans:- No, cannot end with the digit 0.

32. Given that LCM (26, 169) $= 338$, write HCF (26, 169). **Ans:-** 13

33. Find the HCF and LCM of 6, 72 and 120 using the prime factorization method.

Ans:- HCF $= 6$ LCM $= 360$

34. Find the LCM & HCF of 26 and 91 and verify that LCM $\times$ HCF $=$product of the two number

Ans:- LCM$=182$, HCF$=13$