Real Number

Worksheet

Problem – 1.

Is $\sqrt{3}$ an irrational number?

Sol.

Problem – 2.

Write the value of $HCF(p,q) \times LCM(p,q)$.

Sol.

Problem – 3.

Write 42 as product of its prime factors.

Sol.

Problem – 4.

What is $\sqrt{p}$, if p is a positive prime integer?

Sol.

Problem – 5.

Write the value of .737373...?

Sol.

Problem – 6.

Is $\dfrac{129}{2^2 \times 5^3 \times 7^4}$ terminating or non-terminating decimal expansion?

Sol.

Problem – 7.

What is the HCF of 26 and 65?

Sol.

Problem – 8.

Can two numbers have 18 as their HCF and 380 as their LCM? Give reasons.

Sol.

Problem – 9.

Using Euclid's division algorithm, find the HCF of 210 and 55.

Sol.

Problem – 10.

Express 5005 as a product of its prime factors.

Sol.

Problem – 11.

Find the LCM of 6, 72 and 120, using the prime factorisation method.

Sol.

Problem – 12.

Express $0.\overline{24}$ as a fraction in the simplest form:

Sol.

Problem – 13.

Find the HCF of (x^2-4x+3) and (x^2-3x+2).

Sol.

Problem – 14.

Find the LCM of $x^4 - 16$ and $x^2 - 4$.

Sol.

Problem – 15.

Given that LCM (26, 169) = 338, find HCF (26, 169).

Sol.

Problem – 16.

State whether $7.2\overline{3}+\dfrac{4}{5}$ is a rational number or not.

Sol.

Problem – 17.

Prove that $3\sqrt{2}$ is irrational.

Sol.

Problem – 18.

Show that $\frac{1}{\sqrt{2}}$ is irrational.

Sol.

Problem – 19.

Prove that $6+\sqrt{2}$ is an irrational number.

Sol.

Problem – 20.

Show that the square of any odd integer is of the form $4m+1$, for some integer m.

Sol.

Problem – 21.

Using Euclid's division algorithm, find the HCF of 441, 567 and 693.

Sol.

Problem – 22.

Show that 12^n cannot end with the digit 0 or 5 for any natural number n.

Sol.

Problem – 23.

On a morning walk, three persons step off together and their steps measure 40 cm, 42 cm and 45 cm, respectively. What is the minimum distance each should walk, so that each can cover the same distance in complete steps?

Sol.

Problem – 24.

Prove that $\sqrt{p}+\sqrt{q}$ is irrational, where p and q are primes.

Sol.

Problem – 25.

Show that one and only one out of x, $x+2$, or $x+4$ is divisible by 3, where x is any positive integer.

Sol.

Problem – 26.

Prove that the product of three consecutive positive integers is divisible by 6.

Sol.

Problem – 27.

If 'a' is rational and $\sqrt{b}$ is irrational, then prove that $(a+\sqrt{b})$ is irrational.

Sol.

Problem – 28.

Prove that for any prime positive integer $p, \sqrt{p}$ is an irrational number.

Sol.

Problem – 29.

Write each of the following in the form $\frac{p}{q}$ in the simplest form and write the prime factors of q in each case:

(i) 0.2317 (ii) 0.234234234 ...

Sol.

Problem – 30.

Show that the cube of a positive integer of the form $6q+r, q$ is an integer and $r = 0, 1, 2, 3, 4, 5$ is also of the form $6m+r$.

Sol.

Problem – 31.

Show that one and only one out of n, $n+4$, $n+8$, $n+12$ and $n+16$ is divisible by 5, where n is any positive integer.

Sol.

Problem – 32.

Show that there is no positive integer ‘n’ for which $\sqrt{n-1}+\sqrt{n+1}$ is rational.

Sol.

Sol.