

1. If two positive integers  $p$  and  $q$  are written as  $p = a^2b^3$  and  $q = a^3b$ , where  $a$  and  $b$  are prime numbers then verify.

$$\text{LCM}(p, q) \times \text{HCF}(p, q) = p \cdot q$$

2. If  $xy = 180$  and  $\text{HCF}(x, y) = 3$ , then find the  $\text{LCM}(x, y)$

3. If  $\text{HCF}$  of 144 and 180 is expressed in the form  $13m - 16$ . Find the value of  $m$ .

4. Find the  $\text{LCM}$  of smallest two digit composite number and smallest composite number.

5. What is the  $\text{HCF}$  of smallest prime number and the smallest composite number?

6. Explain whether  $3 \times 12 \times 101 + 4$  is a prime number or a composite number.

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

8. Prove that  $\frac{2 + \sqrt{3}}{5}$  is an irrational number, given that  $\sqrt{3}$  is an irrational number.

9. Prove that  $2 - \sqrt{3}$  is irrational, given that  $\sqrt{3}$  is irrational.