



GRADE 10<sup>TH</sup> MATHS  
CHAPTER 1

# REAL NUMBERS

For Online Tutorials, Subscribe



/careerplusacademy

### MULTIPLE-CHOICE QUESTIONS (MCQ)

Choose the correct answer in each of the following questions:

- Which of the following is a pair of co-primes?  
(a) (14, 35)      (b) (18, 25)      (c) (31, 93)      (d) (32, 62)
- If  $a = (2^2 \times 3^3 \times 5^4)$  and  $b = (2^3 \times 3^2 \times 5)$  then  $\text{HCF}(a, b) = ?$   
(a) 90      (b) 180      (c) 360      (d) 540
- HCF of  $(2^3 \times 3^2 \times 5)$ ,  $(2^2 \times 3^3 \times 5^2)$  and  $(2^4 \times 3 \times 5^3 \times 7)$  is  
(a) 30      (b) 48      (c) 60      (d) 105
- LCM of  $(2^3 \times 3 \times 5)$  and  $(2^4 \times 5 \times 7)$  is  
(a) 40      (b) 560      (c) 1120      (d) 1680
- The HCF of two numbers is 27 and their LCM is 162. If one of the numbers is 54, what is the other number?  
(a) 36      (b) 45      (c) 9      (d) 81
- The product of two numbers is 1600 and their HCF is 5. The LCM of the numbers is  
(a) 8000      (b) 1600      (c) 320      (d) 1605
- What is the largest number that divides each one of 1152 and 1664 exactly?  
(a) 32      (b) 64      (c) 128      (d) 256
- What is the largest number that divides 70 and 125, leaving remainders 5 and 8 respectively?  
(a) 13      (b) 9      (c) 3      (d) 585
- What is the largest number that divides 245 and 1029, leaving remainder 5 in each case?  
(a) 15      (b) 16      (c) 9      (d) 5
- The simplest form of  $\frac{1095}{1168}$  is  
(a)  $\frac{17}{26}$       (b)  $\frac{25}{26}$       (c)  $\frac{13}{16}$       (d)  $\frac{15}{16}$



For Online Tutorials, Subscribe  /careerplusacademy

11. Euclid's division lemma states that for any positive integers  $a$  and  $b$ , there exist unique integers  $q$  and  $r$  such that  $a = bq + r$ , where  $r$  must satisfy
- (a)  $1 < r < b$       (b)  $0 < r \leq b$       (c)  $0 \leq r < b$       (d)  $0 < r < b$
12. A number when divided by 143 leaves 31 as remainder. What will be the remainder when the same number is divided by 13?
- (a) 0      (b) 1      (c) 3      (d) 5
13. Which of the following is an irrational number?
- (a)  $\frac{22}{7}$       (b) 3.1416  
(c)  $3.\overline{1416}$       (d) 3.141141114 ...
14.  $\pi$  is
- (a) an integer      (b) a rational number  
(c) an irrational number      (d) none of these
15.  $2.\overline{35}$  is
- (a) an integer      (b) a rational number  
(c) an irrational number      (d) none of these
16.  $2.13113111311113 \dots$  is
- (a) an integer      (b) a rational number  
(c) an irrational number      (d) none of these
17. The number  $3.24636363 \dots$  is
- (a) an integer      (b) a rational number  
(c) an irrational number      (d) none of these
18. Which of the following rational numbers is expressible as a terminating decimal?
- (a)  $\frac{124}{165}$       (b)  $\frac{131}{30}$       (c)  $\frac{2027}{625}$       (d)  $\frac{1625}{462}$

For Online Tutorials, Subscribe  /careerplusacademy

19. The decimal expansion of the rational number  $\frac{37}{2^2 \times 5}$  will terminate after
- (a) one decimal place                      (b) two decimal places  
(c) three decimal places                  (d) four decimal places
20. The decimal expansion of the number  $\frac{14753}{1250}$  will terminate after
- (a) one decimal place                      (b) two decimal places  
(c) three decimal places                  (d) four decimal places
21. The number 1.732 is
- (a) an irrational number                  (b) a rational number  
(c) an integer                                  (d) a whole number
22.  $a$  and  $b$  are two positive integers such that the least prime factor of  $a$  is 3 and the least prime factor of  $b$  is 5. Then, the least prime factor of  $(a + b)$  is
- (a) 2                      (b) 3                      (c) 5                      (d) 8
23.  $\sqrt{2}$  is
- (a) a rational number  
(b) an irrational number  
(c) a terminating decimal  
(d) a nonterminating repeating decimal
24.  $\frac{1}{\sqrt{2}}$  is
- (a) a fraction                                  (b) a rational number  
(c) an irrational number                  (d) none of these
25.  $(2 + \sqrt{2})$  is
- (a) an integer                                  (b) a rational number  
(c) an irrational number                  (d) none of these
26. What is the least number that is divisible by all the natural numbers from 1 to 10 (both inclusive)?
- (a) 100                      (b) 1260                      (c) 2520                      (d) 5040

**ANSWERS (MCQ)**

1. (b)    2. (b)    3. (c)    4. (d)    5. (d)    6. (c)    7. (c)    8. (a)    9. (b)  
10. (d)    11. (c)    12. (d)    13. (d)    14. (c)    15. (b)    16. (c)    17. (b)    18. (c)  
19. (b)    20. (d)    21. (b)    22. (a)    23. (b)    24. (c)    25. (c)    26. (c)

For Online Tutorials, Subscribe



/careerplusacademy

**HINTS TO SOME SELECTED QUESTIONS**

2.  $HCF(a, b)$  = product of common terms with lowest power  
 $= (2^2 \times 3^2 \times 5) = (4 \times 9 \times 5) = 180$ .
3. HCF = product of common terms with lowest power  
 $= (2^2 \times 3 \times 5) = (4 \times 3 \times 5) = 60$ .
4. LCM = product of prime factors with highest power  
 $= (2^4 \times 3 \times 5 \times 7) = (16 \times 3 \times 5 \times 7) = 1680$ .
5. Other number =  $\frac{HCF \times LCM}{\text{given number}} = \frac{27 \times 162}{54} = 81$ .
6.  $LCM = \frac{\text{product of two numbers}}{\text{their HCF}} = \frac{1600}{5} = 320$ .
7. Required number =  $HCF(1152, 1664) = 128$ .
8. Required number =  $HCF\{(70 - 5), (125 - 8)\} = HCF(65, 117) = 13$ .
9. Required number =  $HCF\{(245 - 5), (1029 - 5)\} = HCF(240, 1024) = 16$ .
10.  $HCF\{1095, 1168\} = 73$ .  
 $\therefore \frac{1095}{1168} = \frac{1095 \div 73}{1168 \div 73} = \frac{15}{16}$ .
11. On dividing  $a$  by  $b$ , let  $q$  be the quotient and  $r$  be the remainder.  
 Then, we have  
 $a = bq + r$ , where  $0 \leq r < b$ .
12. Let the given number when divided by 143 give  $q$  as quotient and 31 as remainder.  
 Then, number =  $143q + 31 = \{13 \times 11q + 13 \times 2 + 5\} = 13 \times (11q + 2) + 5$ .  
 So, the same number when divided by 13 gives 5 as remainder.
13. 3.141141114 ... is a nonterminating, nonrepeating decimal. So, it is irrational.
14.  $\pi$  is an irrational number.
15.  $2.\overline{35} = 2.353535\dots$ , which is a repeating decimal.  
 $\therefore 2.\overline{35}$  is rational.
16. 2.13113111311113 ... is a nonterminating, nonrepeating decimal. So, it is irrational.
17. The number 3.24636363 ... is a nonterminating repeating decimal.  
 So, it is a rational number.
18.  $\frac{2027}{625} = \frac{2027}{(5^4 \times 2^0)}$ .  
 So, it is expressible as a terminating decimal.
19.  $\frac{37}{2^2 \times 5} = \frac{37 \times 5}{2^2 \times 5^2} = \frac{185}{(2 \times 5)^2} = \frac{185}{(10)^2} = \frac{185}{100} = 1.85$ .  
 So, it will terminate after 2 decimal places.



For Online Tutorials, Subscribe  /careerplusacademy

$$20. \frac{14753}{1250} \times \frac{8}{8} = \frac{14753 \times 8}{10000} = \frac{14753 \times 8}{(10)^4}$$

So, it will terminate after 4 decimal places.

$$21. 1.732 = \frac{1732}{1000}, \text{ which is a rational number.}$$

22. Clearly, 2 is neither a factor of  $a$  nor that of  $b$ .

$\therefore a$  and  $b$  are both odd.

Hence,  $(a + b)$  is even.

$\therefore$  least prime factor of  $(a + b)$  is 2.

$$24. \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{1}{2} \cdot \sqrt{2}.$$

Here,  $\frac{1}{2}$  is rational and  $\sqrt{2}$  is irrational.

And, the product of a rational and an irrational is irrational.

$\therefore \frac{1}{2} \cdot \sqrt{2}$  and hence  $\frac{1}{\sqrt{2}}$  is irrational.

25. The sum of a rational and an irrational is irrational.

Here, 2 is rational and  $\sqrt{2}$  is irrational.

$\therefore (2 + \sqrt{2})$  is irrational.

26. Required number = LCM{1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

$$= \text{LCM}\{1, 2, 3, 2^2, 5, 2 \times 3, 7, 2^3, 3^2, 2 \times 5\}$$

$$= (1 \times 2^3 \times 3^2 \times 5 \times 7) = (8 \times 9 \times 5 \times 7) = 2520.$$