

Multiple choice Questions

MULTIPLE CHOICE QUESTIONS

REAL NUMBERS

1. The decimal expansion of number has:
 - (a) a terminating decimal
 - (b) non-terminating but repeating
 - (c) non-terminating non repeating
 - (d) terminating after two places of decimal
2. The values of x and y in the given figure are:
 - (a) $x = 10; y = 14$
 - (b) $x = 21; y = 84$
 - (c) $x = 21; y = 25$
 - (d) $x = 10; y = 40$
3. For any positive integer a and 3 , there exist unique integers q and r such that $a = 3q + r$, where r must satisfy :
 - (a) $0 \leq r < 3$
 - (b) $1 < r < 3$
 - (c) $0 < r < 3$
 - (d) $0 < r \leq 3$
4. is:
 - (a) a rational number
 - (b) an irrational number
 - (c) a prime number
 - (d) an even number
5. L.C.M. of 23×32 and 22×33 is :
 - (a) 23
 - (b) 33
 - (c) 23×33
 - (d) 22×32
6. The HCF and LCM of two numbers are 33 and 264 respectively. When the first number is completely divided by 2 the quotient is 33 . The other number is:

- (a) 66
- (b) 130
- (c) 132
- (d) 196

7. What will be the least possible number of the planks, if three pieces of timber 42 m, 49 m and 63 m long have to be divided into planks of the same length?

- (a) 5
- (b) 6
- (c) 7
- (d) none of these

8. What is the greatest possible speed at which a man can walk 52 km and 91 km in an exact number of minutes?

- (a) 17 m/min
- (b) 7 m/min
- (c) 13 m/min
- (d) 26 m/min

9. If $A = 2n + 13$, $B = n + 7$, where n is a natural number then HCF of A and B is:

- (a) 2
- (b) 1
- (c) 3
- (d) 4

10. Pairs of natural numbers whose least common multiple is 78 and the greatest common divisor is 13 are:

- (a) 58 and 13 or 16 and 29
- (b) 68 and 23 or 36 and 49
- (c) 18 and 73 or 56 and 93
- (d) 78 and 13 or 26 and 39

11. Two natural numbers whose sum is 85 and the least common multiple is 102 are:

(a) 30 and 55

(b) 17 and 68

(c) 35 and 55

(d) 51 and 34

12. 4 Bells toll together at 9.00 am. They toll after 7, 8, 11 and 12 seconds respectively.

How many times will they toll together again in the next 3 hours?

(a) 3

(b) 4

(c) 5

(d) 6

13. A forester wants to plant 66 apple trees, 88 banana trees and 110 mango trees in equal rows (in terms of number of trees).

Also he wants to make distinct rows of trees (i.e., only one type of trees in one row). The number of minimum rows required are

(a) 2

(b) 3

(c) 10

(d) 12

14. A number $10x + y$ is multiplied by another number $10a + b$ and the result comes as $100p + 10q + r$, where $r = 2y$, $q = 2(x + y)$ and $p = 2x$; $x, y < 5$, $q \neq 0$. The value of $10a + b$ may be:

(a) 11

(b) 13

(c) 31

(d) 22

15. If the HCF of 65 and 117 is expressible in the form $65m - 117$, then the value of m is

(a) 4

(b) 2

(c) 1

(d) 3

16. The largest number which divides 70 and 125, leaving remainders 5 and 8 respectively, is

(a) 13

(b) 65

(c) 875

(d) 1750

17. If two positive integers a and b are written as $a = x^3y^2$ and $b = xy^3$; x, y are prime numbers, then HCF (a, b) is

(a) xy

(b) xy^2

(c) x^3y^3

(d) x^2y^2

18. If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^3b$; a, b being prime numbers, then LCM (p, q) is

(a) ab

(b) a^2b^2

(c) a^3b^2

(d) a^3b^3

19. The least number that is divisible by all the numbers from 1 to 10 (both inclusive) is

(a) 10

(b) 100

(c) 504

(d) 2520

20. The decimal expansion of the rational number will terminate after

- (a) one decimal place
- (b) two decimal places
- (c) three decimal places
- (d) four decimal places

Extra Questions

Extra questions for Class 10 Maths Chapter 1

Q.1: Find three rational numbers lying between 0 and 0.1. Find twenty rational numbers between 0 and 0.1. Give a method to determine any number of rational numbers between 0 and 0.1.

Q.2: Which of the following rational numbers have the terminating decimal representation?

(i) $\frac{3}{5}$

(ii) $\frac{7}{20}$

(iii) $\frac{2}{13}$

(iv) $\frac{27}{40}$

(v) $\frac{133}{125}$

(vi) $\frac{23}{7}$

Q.3: Write the following rational numbers in decimal form:

(i) $\frac{42}{100}$

(ii) $\frac{27}{8}$

(iii) $\frac{1}{5}$

(iv) $\frac{2}{13}$

(v) $327/500$

(vi) $5/6$

(vii) $1/7$

(viii) $11/17$

Q.4: If a is a positive rational number and n is a positive integer greater than 1, prove that a^n is a rational number.

Q.5: Show that $3\sqrt{6}$ and $3\sqrt{3}$ is not a rational number.

Q.6: Show that $2 + \sqrt{2}$ is not a rational number.

Q.7: Give an example to show that the product of a rational number and an irrational number may be a rational number.

Q.8: Prove that $\sqrt{3} - \sqrt{2}$ and $\sqrt{3} + \sqrt{5}$ are irrational.

Q.9: Express $7/64$, $12/125$ and $451/13$ in decimal form..

Q.10: Find two irrational numbers lying between $\sqrt{2}$ and $\sqrt{3}$.

Q.11: Mention whether the following numbers are rational or irrational:

(i) $(\sqrt{2}+2)$

(ii) $(2-\sqrt{2}) \times (2+\sqrt{2})$

(iii) $(\sqrt{2} + \sqrt{3})^2$

(iv) $6/3\sqrt{2}$

HOTS

HIGHER ORDER THINKING SKILLS (HOTS) QUESTIONS

Real Numbers

1. Find the HCF of 52 and 117 and express it in form $52x + 117y$.
2. Prove that $x^2 - x$ is divisible by 2 for all positive integer x .
3. If m and n are odd positive integers, then $m^2 + n^2$ is even, but not divisible by 4. Justify.
4. If $\text{HCF}(6, a) = 2$ and $\text{LCM}(6, a) = 60$, then find a .
5. If remainder of $\frac{a^2}{n}$ is a natural number, then find it.
6. If n is any prime number and a^2 is divisible by n , then n will also divide a . Justify.
7. Find the missing numbers in prime factors tree.
8. Find the greatest number of 5 digits exactly divisible by 12, 15 and 36.
9. Find the smallest number which when increased by 20 is exactly divisible by 90 and 144.
10. Find the smallest number which leaves remainder 8 and 12 when divided by 28 and 32 respectively.
11. Floor of a room is to be fitted with square marble tiles of the largest possible size. The size of the room is $10 \text{ m} \times 7 \text{ m}$. What should be the size of tiles required that has to be cut and how many such tiles are required?