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Holiday Home Work.
Subject - Maths

Q(1): - Write and remember table upto 20.

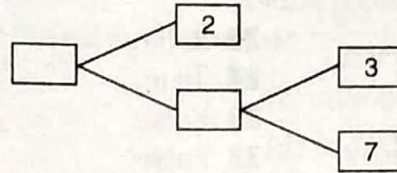
Q(2): - Write and explain all algebraic Identities.

Q(3): -> Solve the following from Chapter-02.

Answer each of the following questions either in one word or one sentence or as per requirement of the questions:

1. State Euclid's division lemma.
2. State Fundamental Theorem of Arithmetic.
3. Write 98 as product of its prime factors.
4. Write the exponent of 2 in the prime factorization of 144.
5. Write the sum of the exponents of prime factors in the prime factorization of 98.
6. If the prime factorization of a natural number n is $2^3 \times 3^2 \times 5^2 \times 7$, write the number of consecutive zeros in n .
7. If the product of two numbers is 1080 and their HCF is 30, find their LCM.

8. Write the condition to be satisfied by q so that a rational number $\frac{p}{q}$ has a terminating decimal expansion. [CBSE 2008]
9. Write the condition to be satisfied by q so that a rational number $\frac{p}{q}$ has a non-terminating decimal expansion.
10. Complete the missing entries in the following factor tree.



[CBSE 2008]

11. The decimal expansion of the rational number $\frac{43}{2^4 \times 5^3}$ will terminate after how many places of decimals? [CBSE 2009]
12. Has the rational number $\frac{441}{2^2 \times 5^7 \times 7^2}$ a terminating or a nonterminating decimal representation? [CBSE 2010]
13. Write whether $\frac{2\sqrt{45} + 3\sqrt{20}}{2\sqrt{5}}$ on simplification gives a rational or an irrational number. [CBSE 2010]
14. What is an algorithm?
15. What is a lemma?
16. If p and q are two prime numbers, then what is their HCF?
17. If p and q are two prime numbers, then what is their LCM?
18. What is the total number of factors of a prime number?
19. What is a composite number?
20. What is the HCF of the smallest composite number and the smallest prime number?
21. HCF of two numbers is always a factor of their LCM (True/False).
22. π is an irrational number (True/False).
23. The sum of two prime numbers is always a prime number (True/False).
24. The product of any three consecutive natural numbers is divisible by 6 (True/False).
25. Every even integer is of the form $2m$, where m is an integer (True/False).
26. Every odd integer is of the form $2m - 1$, where m is an integer (True/False).
27. The product of two irrational numbers is an irrational number (True/False).
28. The sum of two irrational numbers is an irrational number (True/False).
29. For what value of n , $2^n \times 5^n$ ends in 5.
30. If a and b are relatively prime numbers, then what is their HCF?
31. If a and b are relatively prime numbers, then what is their LCM?
32. Two numbers have 12 as their HCF and 350 as their LCM (True/False).

Q(4):- Solve following from chapter - 02

Answer each of the following questions in one word or one sentence or as per the exact requirement of the questions:

1. Define a polynomial with real coefficients.
2. Define degree of a polynomial.
3. Write the standard form of a linear polynomial with real coefficients.
4. Write the standard form of a quadratic polynomial with real coefficients.
5. Write the standard form of a cubic polynomial with real coefficients.
6. Define value of a polynomial at a point.
7. Define zero of a polynomial.
8. The sum and product of the zeros of a quadratic polynomial are $-\frac{1}{2}$ and -3 respectively. What is the quadratic polynomial.
9. Write the family of quadratic polynomials having $-\frac{1}{4}$ and 1 as its zeros.
10. If the product of zeros of the quadratic polynomial $f(x) = x^2 - 4x + k$ is 3 , find the value of k .
11. If the sum of the zeros of the quadratic polynomial $f(x) = kx^2 - 3x + 5$ is 1 , write the value of k .
12. In Fig. 2.17, the graph of a polynomial $p(x)$ is given. Find the zeros of the polynomial.

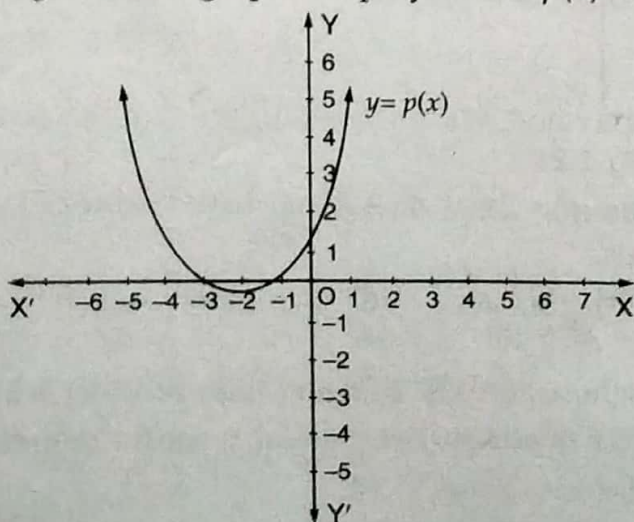


Fig. 2.17

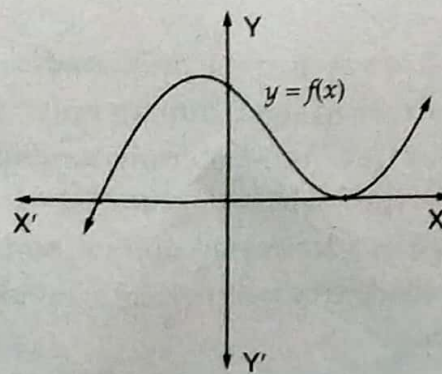


Fig. 2.18

24. If $f(x) = x^3 + x^2 - ax + b$ is divisible by $x^2 - x$ write the values of a and b .
25. If $a - b, a$ and $a + b$ are zeros of the polynomial $f(x) = 2x^3 - 6x^2 + 5x - 7$, write the value of a .
26. Write the coefficients of the polynomial $p(z) = z^5 - 2z^2 + 4$.
27. Write the zeros of the polynomial $x^2 - x - 6$. [CBSE 2008]
28. If $(x + a)$ is a factor of $2x^2 + 2ax + 5x + 10$, find a . [CBSE 2008]
29. For what value of $k, -4$ is a zero of the polynomial $x^2 - x - (2k + 2)$? [CBSE 2009]
30. If 1 is a zero of the polynomial $p(x) = ax^2 - 3(a - 1)x - 1$, then find the value of a .
31. If α, β are the zeros of a polynomial such that $\alpha + \beta = -6$ and $\alpha\beta = -4$, then write the polynomial. [CBSE 2010]
32. If α, β are the zeros of the polynomial $2y^2 + 7y + 5$, write the value of $\alpha + \beta + \alpha\beta$. [CBSE 2010]
33. For what value of k , is 3 a zero of the polynomial $2x^2 + x + k$? [CBSE 2010]
34. For what value of k , is -3 a zero of the polynomial $x^2 + 11x + k$? [CBSE 2010]
35. For what value of k , is -2 a zero of the polynomial $3x^2 + 4x + 2k$? [CBSE 2010]
36. If a quadratic polynomial $f(x)$ is factorizable into linear distinct factors, then what is the total number of real and distinct zeros of $f(x)$?
37. If a quadratic polynomial $f(x)$ is a square of a linear polynomial, then its two zeroes are coincident. (True/False)
38. If a quadratic polynomial $f(x)$ is not factorizable into linear factors, then it has no real zero. (True/False)
39. If $f(x)$ is a polynomial such that $f(a)f(b) < 0$, then what is the number of zeros lying between a and b ?
40. If graph of quadratic polynomial $ax^2 + bx + c$ cuts positive direction of y -axis, then what is the sign of c ?
41. If the graph of quadratic polynomial $ax^2 + bx + c$ cuts negative direction of y -axis, then what is the sign of c ?

Q. (05) Solve from chapter 03

EXERCISE 3.6

1. Solve the following pairs of equations by reducing them to a pair of linear equations:

$$(i) \frac{1}{2x} + \frac{1}{3y} = 2$$

$$\frac{1}{3x} + \frac{1}{2y} = \frac{13}{6}$$

$$(iii) \frac{4}{x} + 3y = 14$$

$$\frac{3}{x} - 4y = 23$$

$$(v) \frac{7x - 2y}{xy} = 5$$

$$\frac{8x + 7y}{xy} = 15$$

$$(vii) \frac{10}{x+y} + \frac{2}{x-y} = 4$$

$$\frac{15}{x+y} - \frac{5}{x-y} = -2$$

$$(ii) \frac{2}{\sqrt{x}} + \frac{3}{\sqrt{y}} = 2$$

$$\frac{4}{\sqrt{x}} - \frac{9}{\sqrt{y}} = -1$$

$$(iv) \frac{5}{x-1} + \frac{1}{y-2} = 2$$

$$\frac{6}{x-1} - \frac{3}{y-2} = 1$$

$$(vi) 6x + 3y = 6xy$$

$$2x + 4y = 5xy$$

$$(viii) \frac{1}{3x+y} + \frac{1}{3x-y} = \frac{3}{4}$$

$$\frac{1}{2(3x+y)} - \frac{1}{2(3x-y)} = \frac{-1}{8}$$

2. Formulate the following problems as a pair of equations, and hence find their solutions:

- (i) Ritu can row downstream 20 km in 2 hours, and upstream 4 km in 2 hours. Find her speed of rowing in still water and the speed of the current.
- (ii) 2 women and 5 men can together finish an embroidery work in 4 days, while 3 women and 6 men can finish it in 3 days. Find the time taken by 1 woman alone to finish the work, and also that taken by 1 man alone.
- (iii) Roohi travels 300 km to her home partly by train and partly by bus. She takes 4 hours if she travels 60 km by train and the remaining by bus. If she travels 100 km by train and the remaining by bus, she takes 10 minutes longer. Find the speed of the train and the bus separately.