**MATHEMATICS HOLIDAY HOMEWORK GRADE - X**

**For the following given questions choose the correct option**

**Q1.**Customers are asked to stand in the lines. If one customer is extra in a line, then there would be two less lines. If one customer is less in line, there would be three more lines. Find the number of customers.
(a) 40 (b) 50 (c) 60 (d) 70

**Q2.**The value of k for which the system of equations $x + 2y = 3 and\ 5x + ky + 7 = 0$ has no solution is
(a) 12 (b) 10 (c) 24 (d) 5

**Q3.** The sum of two digits and the number formed by interchanging its digit is 110. If ten is subtracted from the first number, the new number is 4 more than 5 times of the sum of the digits in the first number. Find the first number.
(a) 46 (b) 48 (c) 64 (d) 84

**Q4.** Five years ago, A was thrice as old as B and ten years later, A shall be twice as old as B. What is the present age of A.
(a) 20 (b) 50 (c) 60 (d) 40

**Q5.** The number to be added to the polynomial $x^2 - 5x + 4$, so that 3 is the zero of the polynomial is
(A) 2
(B) −2
(C) 0
(D) 3

**Q6.** What will be the solution of these equations $ax + by = a - b,\ bx - ay = a + b$
(a) $x = 1, y = 2$ (b) $x = 2, y = -1$ (c) $x = -2, y = -2$(d) $x = 1, y = -1$

**Q7.** If $x = a, y = b$ is the solution of the pair of equation $x - y = 2\ and\ x + y = 4$ then what will be value of a and b
(a) 2,1 (b) 3,1 (c) 4,6 (d) 1,2

**Q8.**The sum of the digits of a two digit number is 9. If 27 is added to it the digits of the number get reversed. The number is.....
(a) 36 (b) 45 (c) 18 (d) 90

**Q9.**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

**Q10**. 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

**Q11.**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

**Q12.**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

**Direction**: In the following questions, a statement of Assertion(A) is followed by a statement of Reason(R) .Mark the choice as :

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(c) Assertion (A) is true but Reason (R) is false.

(d) Assertion (A) is false but Reason (R) is true.

**Q13. Assertion**: If the pair of lines are coincident, then we say that pair of lines is consistent and it
has a unique solution.

**Reason**: If the pair of lines are parallel, then the pairs has no solution and is called inconsistent pair of equations.

**Q14. Assertion**: A pair of linear equations has no solution (s) if it is represented by intersecting lines graphically.

**Reason**: If the pair of lines are intersecting, then the pair has unique solution and is called consistent pair of equations.

**Q15. Assertion:** 2 is an example of a rational number.

**Reason**: The square roots of all positive integers are irrational numbers.

**<u>Subjective Questions:-</u>**

**Q16.** Find the sum of the exponents of the prime factors in the prime factorisation of 196

**Q17.**Find the HCF of 1848, 3058 and 1331.

**Q18.** Express 140 as a product of its prime factors

**Q19.** Find LCM and HCF of 867 and 255 and verify that LCM × HCF = product of the two

numbers.

**Q19.** Find the HCF of 240 and 6552

**Q20.** Prove that 3 + 2√5 is irrational.

**Q21.** Check whether 6^n can end with the digit 0 for any natural number n.

**Q22.** What is the HCF of the smallest prime number and the smallest composite number?

**Q23.** Prove that √3 – √2 and √3 + √5 are irrational.

**Q24.** Explain why 3 x 5 x 7 + 7 is a composite number.

**Q25.** If one zero of the polynomial $3x^2 - 8x - 2k - 1$ is seven times the other, find the zeroes and the value of $k$.

**Q26**. If ⅔ and – 3 are the zeroes of the polynomial $ax^2 + 7x + b$, then find the values of a and b.

**Q27.** If one zero of the polynomial $x^2 - kx + 16$ is cube of the other, find the value of $k$ and hence find the zeroes.

**Q28.** If the sum of squares of zeroes of the polynomial $x^2 - 8x + k$ is 40, find the value of k.

**Q29.** If $\alpha$ and $\beta$ are the zeroes of the polynomial $x^2 - x - 4$, evaluate:

(i) $1/\alpha^2 + 1/\beta^2$

(ii) $\alpha - \beta$

(iii) $1/\alpha^3 + 1/\beta^3$

(iv) $\alpha^4 + \beta^4$

**Q30.** Find the zeroes of the following quadratic polynomials and verify the relation between the zeroes
and coefficients of the polynomials:

(i) $4\sqrt{3}x^2 + 5x - 2\sqrt{3}$

(ii) $4x^2 + 5\sqrt{2}\,x - 3$

**Q31.** Draw the graphs of following pair of equations: 2x + y = 2; 2x + y − 6 = 0. On the same graph paper. Find the area of trapezium formed by these lines along with both the axes.

**Q32.** Determine, graphically, the vertices of the triangle formed by the lines y = x, 3y =x, x + . y = 8.

**Q33.**Solve the following system of linear equations graphically $2x - y = 4$ ; $x + y + 1 = 0$

**Q34.** For which values of p and q, will the following pair of linear equations have infinitely many solutions? $4x + 5y = 2$; $(2p + 7q)\,x + (p + 8q)\,y = 2q - p + 1$.

**Q35.**For what value of a and b the pair of linear equations has coincident lines on the graphical representation: 2x − y = 5 ; (a − 2b)x − (a + b)y = 15.