MODERN PUBLIC SCHOOL, SEC-37, FBD

CLASS-X, SUBJECT-MATHEMATICS

Topic SUMMER HOLIDAY HOME WORK Date (2017-18)

Q.1. Use Euclid's division algorithm, to find the largest number, which divides 957 and 1280 leaving remainder 5 in each case.

Q.2. Find the HCF of 55 and 210. Express it as a linear combination of 55 and 210, i.e. H.C.F. of 55 and 210 = $210a + 55b$, for some a and b.

Q.3. Use Euclid's division lemma to show that the cube of any positive integer is either of the form $9m$ or $9m+1$ or $9m+8$.

Q4. If one zero of the polynomial $2x^2 - 5x - (2k+1)$ is twice the other, then find both the zeroes of the polynomial and the value of k.

Q.5. If α and β are zeroes of the quadratic polynomial $p(x) = 6x^2 + x - 1$, then find the value of $\frac{\alpha}{\beta} + \frac{\beta}{\alpha} + 2\left(\frac{1}{\alpha} + \frac{1}{\beta}\right) + 3\alpha\beta$.

Q6. Obtain all zeroes of the following polynomial, when two of its zeroes are given:-

a) $P(x) = 8x^4 + 8x^3 - 18x^2 - 20x - 5$ having two of its zeroes as $\sqrt{5}/\sqrt{2}$ and $(-\sqrt{5}/\sqrt{2})$.

b) $p(x) = 15x^4 - 41x^2 + 28$ having two of its zeroes as $\frac{2}{\sqrt{3}}$ and $\frac{-2}{\sqrt{3}}$.

Q.7. Solve the system of Equations:- $\frac{1}{2(2x+3y)} + \frac{12}{7(3x-2y)} = \frac{1}{2}$

$$\frac{7}{2x+3y} + \frac{4}{3x-2y} = 2$$

Q.8. Solve the pair of linear equation by elimination method

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substitution and cross-multiplication method :-

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

9.) A boat goes 30 km upstream and 44 km downstream in 10 h. In 13 h, it can go 40 km upstream and 55 km downstream. Determine the speed of the stream and that of the boat in still water.

10.) Find the roots of $x^2 - 4ax + 4a^2 - b^2 = 0$, if they exit, by method of completing the square.

11.) A two-digit number is such that the product of its digit is 35. When 18 is added to the number, the digits interchange their places. Find the number.

12.) Solve for x: $\frac{x-4}{x-5} + \frac{x-6}{x-7} = \frac{10}{3}$

13.) The ratio of the sums of first m and n terms of an AP is $m^2 : n^2$. Show that the ratio of the mth and nth terms is $(2m-1) : (2n-1)$

14.) The sum of first n, 2n, and 3n terms of an AP are S_1, S_2 and S_3, respectively. Prove that $S_3 = 3(S_2 - S_1)$.

PROJECT WORK :- To identify Arithmetic progressions in some given lists of Numbers (Patterns) on A-3 size sheet.

NOTE :-

- Revise full syllabus done in class.
- Holiday Home work will be checked only on 3, 4 and 5 July '17.