GURU GOBIND SINGH PUBLIC SCHOOL

CLASS-10 HOLIDAY HOMEWORK SUBJECT: MATHEMATICS

Chapter:1 Real Numbers

1. Use Euclid's division lemma to show that square of any positive integer is either of the form $3m$ or $3m+1$ for some integer m.
2. Find the L.C.M. of 120 and 70 by fundamental theorem of Arithmetic.
3. Use Euclid's division algorithm to find HCF of 870 and 225.
4. Explain why $11 \times 13 \times 15 \times 17 + 17$ is a composite number.
5. Show that every positive even integer is of the form $2q$ and that every positive odd integer is of the form $2q + 1$, where q is some integer.
6. Using fundamental theorem of arithmetic, find the HCF (26, 51 and 91).
7. Check whether 15^n can end with digit zero for any natural number n.
8. Find the LCM of 336 and 54 by prime factorisation method.
9. Find the LCM and HCF of 120 and 144 by fundamental theorem of arithmetic.
10. Use Euclid's Lemma to show that square of any positive integer is of form $4m$ or $4m+1$ for some integer m.
11. Prove that $2+3\sqrt{2}$ is irrational number.
12. Find the HCF and LCM of 306 and 54. Verify that H C F × LCM = Product of the two numbers.
13. A merchant has 120 litres of oil of one kind, 180 litres of another kind and 240 litres of third kind. He wants to sells the oil by filling, the three kinds of oil in tins of equal capacity. What should be the greatest capacity of such a tin?
14. An army contingent of 616 members is to march behind an army band of 32 members in a parade. The two groups are to march in the same number of columns. What is the maximum number of columns in which they can march?

Chapter:2 Polynomials

1. If one zeros of the quadratic polynomial $f(x)= 4x^2-8kx-9$ is equal in magnitude but opposite in sign of the others, find the value of k.
2. If 1 is a zero of the polynomial $p(x)= ax^2-3(a-1)x-1$, then find the value of a.
3. If α and β are zeros of $p(x)= x^2+x-1$, then find $\frac{1}{\alpha}+\frac{1}{\beta}$.
4. Find the zeros of $p(x)= 6x^2-3-7x$.
5. Divide $p(t)= 2t^4+3t^3-2t^2-9t-12$ by $g(t)= t^2-3$.
6. If one zero of the polynomial $3x^2-8x+2k+1$ is seven times the other , find the value of k.
7. Obtain all the zeros of the cubic polynomial $6x^3+\sqrt{2}\,x^2-10x-4\sqrt{2}$ if, $\sqrt{2}$ is one zero of the given polynomial.
8. Find the zeros of the polynomial $f(x) = -12x^2+39x-28$, if it is given that the zeros are a-b,a and a+b.

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