**HOLIDAY HOMEWORK**

**CLASS X**

***CHAPTER 1***

**1. Use Euclid’s division algorithm to find the HCF of 740 and 45**

**2. Use Euclid’s division algorithm to find the HCF of 1290 and 228**

**3. Find the HCF of 867 and 255, using Euclid’s division algorithm**

**4. Prove that the square of any positive integer is of the form 5 m,5m+1, 5 m+4 for some integer m**

**5. The HCF of two numbers is 23 and their LCM is 1449. If one of the number is 161, find the other.**

**6. Given the HCF (81, 54) = 27, find the LCM (81, 54)**

**7. Why 17 + 11 X 13 X 17 X 19 is a composite number? Explain**

**8. Check whether 7 X 6 X 3 X 5 + 5 is a composite number.**

**9. Prove that** $\sqrt{2}$ **is irrational.**

**10. Prove that** $\sqrt{3}$ **is irrational.**

**11. Prove that** $3\sqrt{7}$ **is irrational.**

**12. Express each of the following numbers as the product of its prime factors**

**(i)1176 (ii)7429 (iii)10626**

**13. Find the HCF and LCM of 56 and 112 by prime factorisation method.**

**14. Find the LCM and HCF of 15, 18, 45 by the prime factorisation method.**

**15. Find the LCM and HCF of 312 and 27 and verify LCM X HCF = Product of the numbers.**

**16. Use Euclid’s division lemma to show that the square of any positive integer is either of the form 3 m or 3 m + 1 for some integer m**

**17. Use Euclid’s division lemma to show that the cube of any positive integer is of the form 9m, 9 m + 1 or 9m + 8**

***CHAPTER 2***

**1. Find the zeroes of the following quadratic polynomials and verify the relationship between the zeroes and the coefficients**

**(i)** $x^{2}-2x-8$ **(ii)** $4s^{2}-4s+1$ **(iii)** $6x^{2}-3-7x$

**(iv)** $4u^{2}+8u$ **(v)** $t^{2}-15$ **(vi)** $3x^{2}-x-4$

**2. Find the quadratic polynomial each with the given numbers as the sum and product of its zeroes respectively**

**(i)** $\frac{1}{4}, -1$ **(ii)** $\sqrt{2,} \frac{1}{3}$ **(iii)** $0, \sqrt{5}$

**(iv) 1, 1 (v)** $-\frac{1}{4}, \frac{1}{4}$ **(vi) 4, 1**

**3. Divide the polynomial P(x) by the polynomial g(x) and find the quotient and remainder in each of the following :**

**(i)** $p\left(x\right)=x^{3}-3x^{2}+5x-3, g\left(x\right)=x^{2}-2$

**(ii)** $p\left(x\right)=x^{4}-3x^{2}+4x+5, g\left(x\right)=x^{2}+1-x$

**(iii)** $p\left(x\right)=x^{4}-5x+6, g\left(x\right)=2-x^{2}$

**4. Check whether the first polynomial is a factor of the second polynomial by dividing the second polynomial by the first polynomial:**

**(i)** $ t^{2}-3, 2t^{4}+3t^{3}-2t^{2}-9t-12$

**(ii)** $ x^{2}+3x+1, 3x^{4}+5x^{3}-7x^{2}+2x+2$

**(iii)** $x^{3}+3x+1, x^{5}-4x^{3}+x^{2}+3x+1$

**5. Obtain all other zeroes of** $3x^{4}+6x^{3}-2x^{2}-10x-5,$ **if two of its zeroes are** $\sqrt{\frac{5}{3} } and - \sqrt{\frac{5}{3}}$

**6. On dividing** $x^{3}-3x^{2}+x+2$ **by a polynomial g(x), the quotient and remainder were**

$x-2 and -2x+4$**, respectively . Find g(x)**

**7. If two zeroes of the polynomial** $x^{4}-6x^{3}-26x^{2}+138x-35 are 2 \pm \sqrt{3}$ **. Find other zeroes**