CLASS: IX  MATHEMATICS  CHAPTER No. 2: POLYNOMIALS.

NAME: ___________________  CLASS/SECTION:  _____________.

1. Find the remainder in each case if p(x) is divided by g(x): (i) p(x) = x³ – 6x² + 2x – 4, g(x) = 1 – 2x; (ii) p(x) = 2x³ – 5x² + 4x – 3, g(x) = 3x + 1. (Ans: –35/8, –134/27).

2. In each of the following, find the value of k such that g(x) a factor of p(x):
   (i) p(x) = 2x³ + kx² + 11x + k + 3, g(x) = 2x – 1; (ii) p(x) = 25x⁴ + 10x³ – 5kx² + 15kx – 1, g(x) = 2 + 5x. (Ans: –7, –5/34).

3. Find the value of k if p(x) = 3x³ – 2kx² + 5x – 4 and q(x) = 2x³ – kx² – 5k leave the same remainder when divided by x + 1. (Ans: 5/2).

4. Factorize each of the following polynomials: (i) 45a³b – 30a²b² + 5ab³; (ii) 16(2x – 1)² – 25(x – 2)²; (iii) 4a² – 9b² – 2a + 3b; (iv) a² – 19a – 216; (v) 1 – 2a – 35a²; (vi) 5x² – 8x – 21; (vii) x² + 17xy – 84y²; (viii) 9x² + 49y² + 4z² + 42xy – 28yz – 12zx; (ix) 9a³ – 243b³; (x) 512x³ + 729y³; (xi) 3√5a³ – 5√5b³; (xii) 216 – 8x³ – 27y³ – 108xy; (xiii) x⁶ – 64; (xiv) (3a – 2b)³ + (2b – 5c)³ + (5c – 3a)³; (xv) 2√2a³ + 8b³ – 27c³ + 18√2 abc.

ANSWERS: (i) 5ab(3a – b)²; (ii) 3(13x – 14)(x + 2); (iii) (2a – 3b)(2a + 3b – 1); (iv) (a – 27)(a + 8); (v) – (7a – 1)(5a + 1); (vi) (x – 3)(5x + 7); (vii) (x + 21y)(x – 4y); (viii) (3x + 7y – 2z)²; (ix) 9(a – 3b)(a² + 3ab + 9b²); (x) (8x + 9y)(64x² – 72xy + 81y²); (xi) (√5a – √5b)³; (xii) (6 – 2x – 3y)(36 + 4x² + 9y² + 12x – 6xy + 18y); (xiii) (x + 2)(x² – 2x + 4)(x – 2)(x² + 2x + 4); (xiv) 3(2a – 3b)(3b – 4c)(4c – 2a); (xv) (√2a + 2b – 3c)(2a² + 4b² + 9c² – 2√2ab + 6bc + 3√2ac).

5. Factorize each of the following cubic polynomials using Factor Theorem:
   (i) p(x) = x³ – 10x² – 53x – 42; (ii) p(x) = x³ + 7x² – 21x – 27; (iii) p(x) = x³ + x² – 17x + 15.

ANSWERS: (i) (x + 1)(x – 14)(x + 3); (ii) (x – 3)(x + 9)(x + 1); (iii) (x – 1)(x + 5)(x – 3).

6. Evaluate each of the following using a suitable identity: (i) 97×103; (ii) 83×105; (iii) 99³; (iv) 77² – 23²; (v) 505³; (vi) 39³ – 23³ – 16³; (vii) 95×93; (viii) 37² – 2×37×33 + 33².

ANSWERS: (i) 9991; (ii) 8715; (iii) 970299; (iv) 5400; (v) 128787625; (vi) 43056; (vii) 8835; (viii) 16.

BASIC LIFE MANTRAS 2: It is generally found that those who are constantly lamenting their ill luck are only reaping the consequences of their own neglect, lethargy, mis-management, carelessness or want of application. On the other hand there are people who keep thanking God Almighty day and night that their hands are full of work. They feel lucky that they are getting opportunities to learn, to act, to do a job. So, look at a day when you are supremely satisfied at the end. It’s not a day when you lounge around doing nothing; it’s when you’ve had everything to do and you have done it all. Perseverance, self-discipline and sheer hard work are the key to success and glory. “I am a great believer in luck and I find the harder I work, the more I have of it.” - Thomas Jefferson. God Bless You. Best Wishes from: Rajeev Maakan.