EduSahara™ Assignment

Name : Factor Theorem

Chapter : Polynomials and Factorisation

Grade : SSC Grade IX

1. Find the value of k such that $kx^4 + 52x^3 + 98x^2 + 27x - 45$ is exactly divisible by $(x+3)$

   (i) 8 (ii) 9 (iii) 10 (iv) 7 (v) 6

2. If 2 and -1 are the zeros of the polynomial $f(x) = 4x^4 + ax^3 - 30x^2 + 16x + b$, find the value of a and b

   (i) -2 , 40 (ii) -1 , 40 (iii) 39 , -3 (iv) 41 , -1 (v) -2 , 41

3. Find the value of a and b such that $8x^4 - 40x^3 - 26x^2 + bx + a$ is exactly divisible by $(2x^2 - 7x - 15)$

   (i) 119 , 61 (ii) 60 , 118 (iii) 61 , 118 (iv) 60 , 119 (v) 117 , 59

4. If the polynomial $f(x) = 9x^2 + kx + 8$ is exactly divisible by $(3x-4)$, find k

   (i) -17 (ii) -19 (iii) -16 (iv) -20 (v) -18

5. If the polynomials $-6x^2 + ax + 77$ and $ax^2 - 5x - 52$ leave the same remainder when divided by $(x+3)$, find the value of a

   (i) 4 (ii) 8 (iii) 6 (iv) 5 (v) 3

6. If $(x^2 - 1)$ is a factor of $ax^4 + bx^3 + cx^2 + dx + e$, which of the following are true ?

   a) b + d = 0
   b) a + b + c = d + e
   c) a + b + c + d + e = 0
   d) a + b + c = 0
   e) d + e = 0
   f) a + c + e = 0

   (i) {a,c,f} (ii) {d,c} (iii) {e,b,f} (iv) {d,a,c} (v) {b,a}

7. Which of the following are true ?

   a) If p(x) is divided by (x - a), the remainder is p(a)
   b) If the degree of p(x) is less then the degree of d(x), we should not divide p(x) with d(x)
   c) Division of a polynomial with another polynomial stops when the degree of the remainder equals the degree of the divisor
   d) If p(a) = 0, then (x + a) perfectly divides p(x)

   (i) {c,d,a} (ii) {c,a} (iii) {c,b,a} (iv) {d,b} (v) {a,b}

8. Which of the following are possible values for the length and breadth of a rectangle whose area is $(9x^2 - 6x - 8)$

   (i) $(-4x+6)(3x+4)$ (ii) $(3x-2)(3x-4)$ (iii) $(3x+2)(3x+4)$ (iv) $(3x+2)(3x-4)$ (v) $(3x-2)(3x+4)$

9. In which of the cases, $g(x)$ is a factor of $f(x)$?

(i) $f(x)=(9x^3-54x^2+17x+140), g(x)=(-2x+1)$ (ii) $f(x)=(-9x^3+37x+28), g(x)=(-x+5)$

(iii) $f(x)=(3x^3-13x^2+5x+21), g(x)=(3x+4)$ (iv) $f(x)=(2x^3-5x^2-4x+3), g(x)=(-x+3)$

(v) $f(x)=(18x^3-27x^2-47x+28), g(x)=(x+1)$

10. Which of the following polynomials is a multiple of $(2x+1)$?

(i) $(2x^3-9x^2+13x-6)$ (ii) $(2x^3-5x^2-37x+60)$ (iii) $(x^3-8x^2+17x-10)$ (iv) $(2x^3+3x^2-17x+12)$

(v) $(2x^3-x^2-41x-20)$

11. Which of the following polynomials has $(2x-4)$ as a factor ?

(i) $(9x^3+36x^2-x-4)$ (ii) $(18x^3-42x^2+8x+8)$ (iii) $(6x^3+23x^2-6x-8)$ (iv) $(6x^3+25x^2+3x-4)$

(v) $(18x^3+3x^2-7x-2)$

12. If $f(x)=(8x^3-14x-6)$ and $g(x)=(18x^3-45x^2+13x+20)$ have a common factor, find the common factor

(i) $(2x+1)$ (ii) $(3x-4)$ (iii) $(2x-3)$ (iv) $(2x+2)$ (v) $(3x-5)$

13. Which of the following polynomials is not a multiple of $(2x+3)$?

(i) $(4x^2+8x+3)$ (ii) $(2x^2+7x+6)$ (iii) $(2x^2+5x+2)$ (iv) $(2x^2+13x+15)$ (v) $(2x^2+9x+9)$

Assignment Key

1) (i)	2) (i)	3) (ii)	4) (v)	5) (iv)	6) (i)
7) (v)	8) (iv)	9) (iv)	10) (v)	11) (ii)	12) (i)
13) (iii)					