

EduSahara™ Learning Center Assignment**Grade : Class IX, SSC****Chapter : Polynomials and Factorisation****Name : Factor Theorem**

- Find the value of k such that $2x^3 + kx^2 - 10x + 6$
1. is exactly divisible by $(x + 3)$
- (i) 2 (ii) 4 (iii) -1 (iv) 3 (v) 1

- If $\frac{1}{2}$ and -1 are the zeros of the polynomial
2. $f(x) = 2x^4 + 7x^3 + ax^2 + bx + 4$, find the value of a and b
- (i) $-5, -7$
- (ii) $-8, -7$
- (iii) $-6, -5$
- (iv) $-6, -6$
- (v) $-6, -7$

- Find the value of a and b such that
3. $bx^4 + ax^3 - 102x^2 - 5x + 25$ is exactly divisible by $(2x^2 + 5x - 25)$
- (i) $7, 19$
- (ii) $20, 9$
- (iii) $9, 21$
- (iv) $20, 8$
- (v) $21, 8$

- If the polynomial $f(x) = 3x^2 + 5x + k$
4. is exactly divisible by $(3x - 4)$, find k
- (i) -9 (ii) -15 (iii) -11 (iv) -12 (v) -13

- If the polynomials $-4x^2 + ax + 34$ and $ax^2 + 6x - 38$
5. leave the same remainder when divided by $(x - 3)$, find the value of a
- (i) 6 (ii) 2 (iii) 3 (iv) 4 (v) 0

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

which of the following are true ?

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

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

7. Which of the following are true ?

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

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

Which of the following are possible values for the length and breadth

8. of a rectangle whose area is $(-25x^2 + 16)$

- (i) $(-5x + 6)(-5x - 4)$
- (ii) $(5x + 4)(-5x - 4)$
- (iii) $(5x + 4)(-5x + 4)$
- (iv) $(5x - 4)(-5x + 4)$
- (v) $(5x - 4)(-5x - 4)$

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

- (i) $f(x) = (-18x^3 - 69x^2 - 50x + 25)$, $g(x) = (-x + 3)$
- (ii) $f(x) = (-6x^3 + x^2 + 46x + 15)$, $g(x) = (3x + 5)$
- (iii) $f(x) = (-27x^3 - 45x^2 + 3x + 5)$, $g(x) = (-3x + 1)$
- (iv) $f(x) = (-6x^3 - 7x^2 + 50x + 75)$, $g(x) = (3x + 2)$
- (v) $f(x) = (-6x^3 - x^2 + 47x + 30)$, $g(x) = (3x + 1)$

10. Which of the following polynomials is a multiple of $(x + 3)$?

(i) $(3x^3 - 2x^2 - 61x - 20)$

(ii) $(3x^3 + x^2 - 64x - 80)$

(iii) $(9x^3 + 33x^2 + 34x + 8)$

(iv) $(3x^3 - 8x^2 - 33x - 10)$

(v) $(3x^3 + 25x^2 + 64x + 48)$

11. Which of the following polynomials has $(3x - 3)$ as a factor ?

(i) $(8x^3 + 20x^2 - 8x - 20)$

(ii) $(6x^3 - 24x^2 + 30x - 12)$

(iii) $(4x^3 + 26x^2 + 52x + 30)$

(iv) $(2x^3 + 4x^2 - 10x - 12)$

(v) $(4x^3 - 2x^2 - 22x + 20)$

12. If $f(x) = (6x^3 + x^2 - 10x + 3)$ and $g(x) = (x^3 - 3x^2 - 13x + 15)$

have a common factor, find the common factor

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

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

(i) $(x^2 - 7x + 10)$

(ii) $(2x^2 - 9x + 9)$

(iii) $(x^2 - 5x + 6)$

(iv) $(x^2 - x - 6)$

(v) $(x^2 - 8x + 15)$

Assignment Key

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