EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Factor Theorem

Grade : ICSE Grade X

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

   (i) $(12x^3+24x^2-12x-24)$ (ii) $(6x^3-36x^2+54x-24)$ (iii) $(6x^3-18x^2-36x+48)$

   (iv) $(2x^3-10x^2+4x+16)$ (v) $(4x^3+4x^2-16x-16)$

2. The remainder when $(3t^2+9t)$ is divided by $(t-9)$ is

   (i) 326 (ii) 324 (iii) 325 (iv) 323 (v) 322

3. The quotient when $(-6r^2-5r+8)$ is divided by $(r+7)$ is

   (i) $(-6r+37)$ (ii) $(-7r+37)$ (iii) $(-3r+37)$ (iv) $(-5r+37)$ (v) $(-9r+37)$

4. The quotient when $(-6j)$ is divided by 1 is

   (i) $(-3j)$ (ii) $(-6j)$ (iii) $(-5j)$ (iv) $(-8j)$ (v) $(-7j)$

5. The value of the polynomial $(-3k^3+5k^2-2k)$ at $k=0$ is

   (i) -1 (ii) 3 (iii) 0 (iv) 1 (v) -3

6. The remainder when $(-8q^2)$ is divided by $(q-8)$ is

   (i) (-511) (ii) (-510) (iii) (-512) (iv) (-513) (v) (-514)

7. Which of the following are true?

   a) A binomial may have degree 3
   b) Every polynomial is a binomial
   c) Degree of zero polynomial is zero
   d) A binomial has two and only two terms
   e) πr^2 is a monomial

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

8. The degree of the polynomial $(-3q^4-2q^3-7q^2)$ is

   (i) 6 (ii) 1 (iii) 4 (iv) 5 (v) 3

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

   (i) $(2x^2+9x+4)$ (ii) (x^2-2x-3) (iii) $(3x^2-10x+3)$ (iv) (x^2+x-12) (v) $(2x^2-5x-3)$

10. If the polynomial $bx^4+2x^3+ax^2-36x+180$ is divided by $(x-3)$, it leaves a remainder -108. If it is divided by $(x-2)$, it leaves a remainder 0. Find the value of a and b

    (i) -35 , 2 (ii) -35 , 1 (iii) 2 , -34 (iv) 0 , -36 (v) -34 , 1

11. $(9x^3-21x^2+4x+4)\div(-3x^2+8x-4)=$

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

12. $(64x^3y^4+16x^2y^4)\div 4xy^2=$

(i) $(16x^3y^4+4xy^2)$ (ii) $(16x^3y^3+4xy^2)$ (iii) $(16x^2y^2+4xy^2)$ (iv) $(16x^2y^2+4y^3)$

(v) $(16x^2y^2+4xy^3z)$

13. $(140x^4y^4z^2+20x^4y^3z^3+4x^3y^4z^2)\div 2x^2y^2z=$

(i) $(70x^2y^2z+10xy^2z^2+2xy^2z)$ (ii) $(70x^2y^2z+10x^2yz^2+2xy^2z)$ (iii) $(10x^2y^2z^3+70x^2y^2z+2xy^2z)$

(iv) $(70x^3y^4z+10x^2yz^2+2xy^2z)$ (v) $(70x^3y^3z+10x^2yz^2+2xy^2z)$

14. Given $f(i)=(-9i^4-6i^3+7i^2-7i+8)$, find $f(4)$

(i) -2597 (ii) -2593 (iii) -2595 (iv) -2598 (v) -2596

15. Which of the following are true?

a) If (x - a) is a factor of f(x), then f(a) = 0
b) Zero of a polynomial and zero polynomial are synonymous
c) Zero of a polynomial is the value of the variable for which the polynomial value is zero
d) A linear polynomial in one variable has only one root
e) If (x + a) is a factor of f(x), then f(a) = 0
f) Zero of a polynomial and root of the polynomial are synonymous
g) A polynomial of degree n has atmost n zeros

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

16. Which of the following are true ?

a) Division of a polynomial with another polynomial stops when the degree of the remainder equals the degree of the divisor
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) If p(a) = 0, then (x + a) perfectly divides p(x)
d) If p(x) is divided by (x - a), the remainder is p(a)

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

17. Find the remainder when $(6x^2-15x+9)$ is divided by $(2x-7)$

(i) 33 (ii) 29 (iii) 31 (iv) 28 (v) 30

18. $(-24x^4+4x^3+58x^2-9x-9)\div(-12x^3-16x^2+5x+3)=$

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

19. If $(x-a)$ is a factor of $x^3-ax^2+7x+28$, find the value of a

(i) (-5) (ii) (-4) (iii) (-1) (iv) (-7) (v) (-3)

20. Find the quadratic polynomial which when divided by $(2x-6)$, $(3x+1)$, $(2x+4)$ leaves remainders of 234, 24, (-6) respectively.

(i) $(6x^2-54)$ (ii) $(9x^2+39x+36)$ (iii) $(6x^2+20x+16)$ (iv) $(6x^2+14x+4)$ (v) $(6x^2-16x-6)$

21. Given $f(h)=(-9h^2+9h-1)$, find $f((-3))$

(i) -110 (ii) -108 (iii) -106 (iv) -109 (v) -112

22. The quotient when $(-5i^5-3i^4-6i^3+8i^2-4i-6)$ is divided by $(i+2)$ is

(i) $(-4i^4+7i^3-20i^2+48i-100)$ (ii) $(-7i^4+7i^3-20i^2+48i-100)$ (iii) $(-3i^4+7i^3-20i^2+48i-100)$

(iv) $(-5i^4+7i^3-20i^2+48i-100)$ (v) $(-6i^4+7i^3-20i^2+48i-100)$

23. The value of the polynomial $(c-4)$ at $c=(-5)$ is

(i) -8 (ii) -7 (iii) -9 (iv) -10 (v) -11

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

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

25. Factorize $(56x^2-7xy-63y^2)$

(i) $(7x+7y)(8x-9y)$ (ii) $(7x-7y)(8x-9y)$ (iii) $(7x+7y)(7x-7y)$ (iv) $(7x+7y)(8x+9y)$

(v) $(7x-7y)(8x+9y)$

Assignment Key

1) (ii)	2) (ii)	3) (i)	4) (ii)	5) (iii)	6) (iii)
7) (v)	8) (iii)	9) (i)	10) (ii)	11) (v)	12) (iii)
13) (ii)	14) (v)	15) (iv)	16) (ii)	17) (v)	18) (iii)
19) (ii)	20) (ii)	21) (iv)	22) (iv)	23) (iii)	24) (ii)
25) (i)					

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