EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Polynomials and Factorisation

Grade : SSC Grade IX

1. Expand $\left(x-\frac{1}{x}\right)\left(x+\frac{1}{x}\right)\left(x^2+\frac{1}{x^2}\right)$

(i) $x^5+x^3+x+\frac{1}{x}$ (ii) $-x-\frac{2}{x^3}-\frac{1}{x^7}$ (iii) $x^4-\frac{1}{x^4}$ (iv) $4x^5+7x+4x^3+\frac{7}{x}+\frac{3}{x^3}+\frac{3}{x^5}$

2. Which of the following are true?

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

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

3. Factorize $(27a^3+36abc-b^3+64c^3)$

(i) $(3a-b+4c)(9a^2+3ab-12ac+b^2+4bc+16c^2)$ (ii) $(3a-4b+4c)(9a^2-12ac+b^2+4bc+16c^2)$

(iii) $(3a+2b+4c)(9a^2+5ab-12ac+b^2+4bc+16c^2)$ (iv) $(4a-b+4c)(10a^2+3ab-12ac+b^2+4bc+16c^2)$

(v) $(2a-b+4c)(8a^2+3ab-12ac+b^2+4bc+16c^2)$

4. The value of the polynomial (-7) at $u=5, v=(-3), w=(-3)$ is

(i) -6 (ii) -7 (iii) -8 (iv) -10 (v) -4

5. The quotient when $(6n^4+7n^3-n^2+n-1)$ is divided by $(n^2-6n-16)$ is

(i) $(7n^2+43n+353)$ (ii) $(5n^2+43n+353)$ (iii) $(8n^2+43n+353)$ (iv) $(6n^2+43n+353)$

(v) $(3n^2+43n+353)$

6. The remainder when $(x-6)$ is divided by $(x-8)$ is

(i) 0 (ii) 4 (iii) 1 (iv) 2 (v) 3

7. If the polynomial $f(x)=6x^2+kx-20$ is exactly divisible by $(2x-4)$, find k

(i) -1 (ii) -2 (iii) 0 (iv) -5 (v) -3

8. $(-2a+2b)(4a^2+4ab+4b^2)$

(i) $(-7a^3+8b^3)$ (ii) $(-8a^3+6b^3)$ (iii) $(-8a^3+8b^3)$ (iv) $(-9a^3+8b^3)$ (v) $(-8a^3+10b^3)$

9. If $f(x)=(18x^3+33x^2-31x-60)$ and $g(x)=(3x^3-x^2-40x+48)$ have a common factor, find the common factor

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

10. $(a+b)(a-b)$

(i) (a^2+2b^2) (ii) (a^2-3b^2) (iii) $(-b^2)$ (iv) (a^2-b^2) (v) $(2a^2-b^2)$

11. Factorize $(16x^2-16y^2)$

(i) $(4x-8y)(4x+2y)$ (ii) $(4x+4y)(4x-4y)$ (iii) $(4x+4y)(4x+4y)$ (iv) $(4x-4y)(4x-4y)$

(v) $(4x+8y)(4x-2y)$

12. Which of the following is a like term of 2 ?

(i) $3b^2$ (ii) $(-6a^2b)$ (iii) $9a$ (iv) 7 (v) b

13. The quotient of $(9a^2+18ab+9b^2)\div(3a+3b)$ is

(i) $(3a+6b)$ (ii) $(3a+b)$ (iii) $(3a+3b)$ (iv) $(2a+3b)$ (v) $(4a+3b)$

14. $(-3a+3b)^2$

(i) $(8a^2-18ab+9b^2)$ (ii) $(10a^2-18ab+9b^2)$ (iii) $(9a^2-16ab+9b^2)$ (iv) $(9a^2-18ab+9b^2)$

(v) $(9a^2-20ab+9b^2)$

15. Factorize $(30a^2b+15ab^2)$

(i) $5b(6a-3b)$ (ii) $5ab(6a+3b)$ (iii) $5ab(-6a-3b)$ (iv) $5ab(6a-3b)$ (v) $5a(6a+3b)$

16. The quotient of $(64a^3-48a^2b+12ab^2-b^3)\div(4a-b)$ is

(i) $(16a^2-5ab+b^2)$ (ii) $(16a^2-8ab+b^2)$ (iii) $(17a^2-8ab+b^2)$ (iv) $(15a^2-8ab+b^2)$

(v) $(16a^2-11ab+b^2)$

17. Which of the following is a like term of $6m^2$?

(i) $(-4n^2)$ (ii) $(-no)$ (iii) $9m^2$ (iv) $7m$ (v) $3m^2n^2o^2$

18. The quotient of $(27a^3-125b^3)\div(3a-5b)$ is

(i) $(10a^2+15ab+25b^2)$ (ii) $(9a^2+18ab+25b^2)$ (iii) $(9a^2+15ab+25b^2)$ (iv) $(9a^2+12ab+25b^2)$

(v) $(8a^2+15ab+25b^2)$

19. The value of $(7x+6y)\times(-7xy-7x)$ is

(i) $(-48x^2y-49x^2-42xy^2-42xy)$ (ii) $(-49x^2y-51x^2-42xy^2-42xy)$

(iii) $(-50x^2y-49x^2-42xy^2-42xy)$ (iv) $(-49x^2y-49x^2-42xy^2-42xy)$

(v) $(-49x^2y-46x^2-42xy^2-42xy)$

20. Factorize $64a^3-49a$

(i) $(8a^2+7)(7a-8)a$ (ii) $(8a+7)(8a^2+7)a$ (iii) $(8a+7)(7a-8)a$ (iv) $(8a+7)(8a-7)a$

(v) $(8a-7)(8a^2+7)a$

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

(i) $(6x^3+13x^2-21x-18)$ (ii) $(2x^3-5x^2-21x+36)$ (iii) $(3x^3+2x^2-48x-32)$

(iv) $(2x^3-3x^2-32x+48)$ (v) $(3x^3+17x^2+22x+8)$

22. Factorize $(64a^3+144a^2b+108ab^2+27b^3)$

(i) $(5a+3b)(5a+3b)(5a+3b)$ (ii) $(4a+3b)(4a+3b)(4a+3b)$ (iii) $(4a+b)4a4a$

(iv) $(4a+5b)(4a+5b)(4a+5b)$ (v) $(3a+3b)(3a+3b)(3a+3b)$

23. $(a-b)^3$

(i) $(a^3-3a^2b+3ab^2-b^3)$ (ii) $(-3a^2b+3ab^2-b^3)$ (iii) $(2a^3-3a^2b+3ab^2-b^3)$

(iv) $(a^3-6a^2b+3ab^2-b^3)$ (v) $(a^3+3ab^2-b^3)$

24. $(-\frac{3}{2}a+\frac{3}{2}b)^2$

(i) $(\frac{9}{4}a^2-\frac{9}{2}ab+\frac{9}{4}b^2)$ (ii) $(\frac{13}{6}a^2-\frac{9}{2}ab+\frac{9}{4}b^2)$ (iii) $(\frac{5}{2}a^2-\frac{9}{2}ab+\frac{9}{4}b^2)$ (iv) $(\frac{9}{4}a^2-\frac{7}{2}ab+\frac{9}{4}b^2)$

(v) $(\frac{9}{4}a^2-\frac{11}{2}ab+\frac{9}{4}b^2)$

25. Which of the following algebraic expressions is a monomial?

(i) $(6a^2bc^2+7a^2c)$ (ii) $(3a^3bc^2+5a^2b^2c^3+9a^2c^2)$ (iii) $(7a^3bc^3-9a^2b^2c^2-8a^2bc^2+4b)$

(iv) $(-4a^3c^3+6ab^3c^3+5ab^2c^3-7c)$ (v) $(-9a^3b^2c)$

Assignment Key

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