EXERCISE 9.1 PAGE NO: 140

Q1. Identify the terms, their coefficients for each of the following expressions. (i) $5xyz^2 – 3zy$ (ii) $1 + x + x^2$(iii) $4x^2y^2 – 4x^2y^2z^2 + z^2$ (iv) $3 – pq + qr – p$ (v) $(x/2) + (y/2) – xy$ (vi) $0.3a – 0.6ab + 0.5b$

Solution :

Sl. No.	Expression	Term	Coefficient
i)	$5xyz^2 – 3zy$	Term: $5xyz^2$ Term: $-3zy$	5 -3
ii)	$1 + x + x^2$	Term: *1* Term: *x* *Term:* x^2	1 1 1
iii)	$4x^2y^2 – 4x^2y^2z^2 + z^2$	Term: $4x^2y^2$ Term: $-4\ x^2y^2z^2$ *Term :* z^2	4 -4 1
iv)	$3 – pq + qr – p$	*Term :* 3 -pq qr -p	3 -1 1 -1
v)	$(x/2) + (y/2) – xy$	*Term :* x/2 Y/2 -xy	½ 1/2 -1
vi)	$0.3a – 0.6ab + 0.5b$	*Term :* 0.3a -0.6ab 0.5b	0.3 -0.6 0.5

2. Classify the following polynomials as monomials, binomials, trinomials. Which polynomials do not fit in any of these three categories? $x + y$, 1000, $x + x^2 + x^3 + x^4$, $7 + y + 5x$, $2y – 3y^2$, $2y – 3y^2 + 4y^3$, $5x – 4y + 3xy$, $4z – 15z^2$, $ab + bc + cd + da$, pqr, $p^2q + pq^2$, $2p + 2q$

Solution:

Let us first define the classifications of these 3 polynomials:

Monomials contain only one term.

Binomials contain only two terms.

Trinomials contain only three terms.

$x + y$	two terms	Binomial

1000	one term	Monomial
$x + x^2 + x^3 + x^4$	four terms	Polynomial, and it does not fit in the listed three categories
$2y – 3y^2$	two terms	Binomial
$2y – 3y^2 + 4y^3$	three terms	Trinomial
$5x – 4y + 3xy$	three terms	Trinomial
$4z – 15z^2$	two terms	Binomial
$ab + bc + cd + da$	four terms	Polynomial, and it does not fit in the listed three categories
pqr	one term	Monomial
$p^2q + pq^2$	two terms	Binomial
$2p + 2q$	two terms	Binomial
$7 + y + 5x$	three terms	Trinomial

3. Add the following.

(i) ab – bc, bc – ca, ca – ab

(ii) a – b + ab, b – c + bc, c – a + ac

(iii) $2p^2q^2 – 3pq + 4$, $5 + 7pq – 3p^2q^2$

(iv) $l^2 + m^2$, $m^2 + n^2$, $n^2 + l^2$, 2lm + 2mn + 2nl

Solution:

i) (ab – bc) + (bc – ca) + (ca-ab)

= ab – bc + bc – ca + ca – ab

= ab – ab – bc + bc – ca + ca

= 0

ii) (a – b + ab) + (b – c + bc) + (c – a + ac)

= a – b + ab + b – c + bc + c – a + ac

= a – a +b – b +c – c + ab + bc + ca

= 0 + 0 + 0 + ab + bc + ca

= ab + bc + ca

iii) $2p^2q^2$ – *3pq + 4, 5 + 7pq* – $3p^2q^2$

= $(2p^2q^2 – 3pq + 4) + (5 + 7pq – 3p^2q^2)$

= $2p^2q^2 – 3p^2q^2 – 3pq + 7pq + 4 + 5$

= $– p^2q^2 + 4pq + 9$

iv)$(l^2 + m^2) + (m^2 + n^2) + (n^2 + l^2) + (2lm + 2mn + 2nl)$

= $l^2 + l^2 + m^2 + m^2 + n^2 + n^2 + 2lm + 2mn + 2nl$

= $2l^2 + 2m^2 + 2n^2 + 2lm + 2mn + 2nl$

4. (a) Subtract *4a – 7ab + 3b + 12* from *12a – 9ab + 5b – 3*

(b) Subtract *3xy + 5yz – 7zx* from *5xy – 2yz – 2zx + 10xyz*

(c) Subtract $4p^2q – 3pq + 5pq^2 – 8p + 7q – 10$ from $18 – 3p – 11q + 5pq – 2pq^2 + 5p^2$q

Solution:

(a) (12a – 9ab + 5b – 3) – (4a – 7ab + 3b + 12)

= 12a – 9ab + 5b – 3 – 4a + 7ab – 3b – 12

= 12a – 4a -9ab + 7ab +5b – 3b -3 -12

= 8a – 2ab + 2b – 15

b) (5xy – 2yz – 2zx + 10xyz) – (3xy + 5yz – 7zx)

= 5xy – 2yz – 2zx + 10xyz – 3xy – 5yz + 7zx

=5xy – 3xy – 2yz – 5yz – 2zx + 7zx + 10xyz

= 2xy – 7yz + 5zx + 10xyz

c) (18 – 3p – 11q + 5pq – $2pq^2$ + $5p^2q$) – ($4p^2q$ – 3pq + $5pq^2$ – 8p + 7q – 10)

= 18 – 3p – 11q + 5pq – $2pq^2$ + $5p^2q$ – $4p^2q$ + 3pq – $5pq^2$ + 8p – 7q + 10

=18+10 -3p+8p -11q – 7q + 5 pq+ 3pq- 2pq^2 – 5pq^2 + 5 p^2 q – 4p^2 q

= 28 + 5p – 18q + 8pq – $7pq^2$ + p^2q