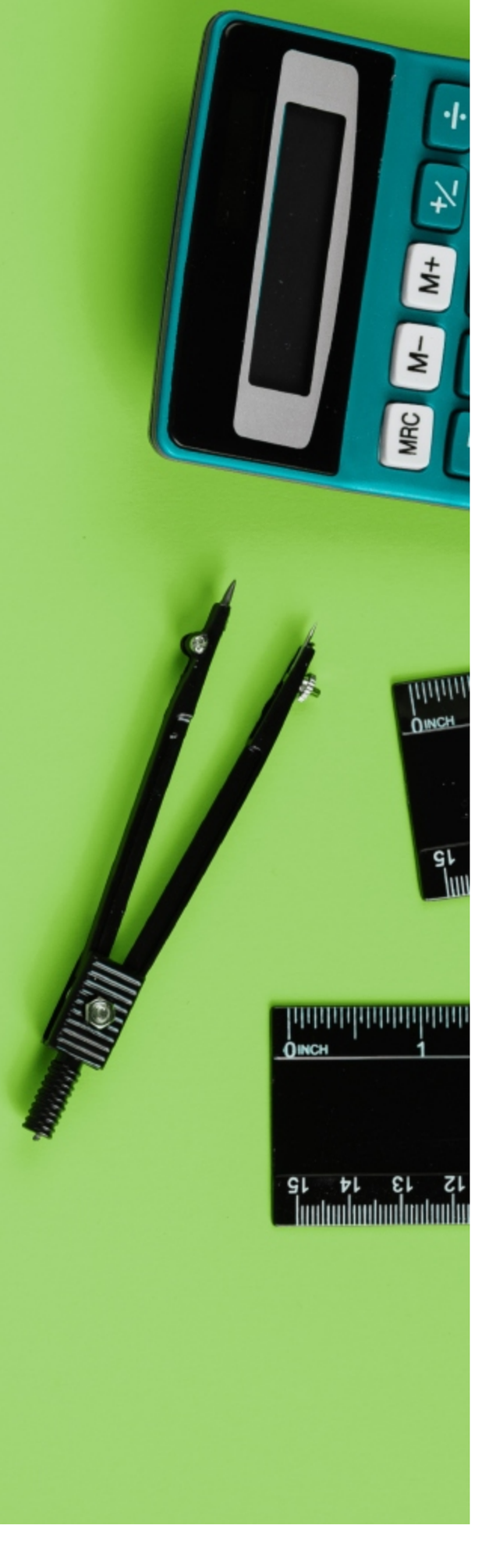
RD Sharma Solutions

Class 7

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Chapter-7
Algebraic Expressions

Exercise 7.1

Q.1 Identify the monomials, binomials, trinomials and quadrinomials from the following expressions:

(i) a^2 (ii) a^2-b^2 (iii) $x^3+y^3+z^3$

(iv) $x^3+y^3+z^3+3xyz$ (v) $7+5$ (vi) $abc+1$

(vii) $3x-2+5$

(viii) $2x-3y+4$

(ix) $xy+yz+zx$

(x) ax^3+bx^2+cx+d

Solution: (i) a^2 — Monomial

(ii) a^2-b^2 — Binomial

(iii) $x^3+y^3+z^3$ — Trinomials

(iv) $x^3+y^3+z^3+3xyz$ — Quadrinomials.

(v) $7+5=12$ — Monomial

(vi) $abc+1$ — Binomial

(vii) $3x-2+5=3x+3$
= Binomial

(viii) $2x-3y+4$ — Trinomial

(ix) $xy+yz+zx$ — Trinomial

(x) $ax^3+bx^2+cx+d \rightarrow$ Quadrinomial.

Q.2 Write all the terms of each of the following algebraic expressions.

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(i) $3x$ (ii) $2x-3$ (iii) $2x^2-7$

(iv) $2x^2+y^2-3xy+4$

Solution: (i) Terms of $3x$ are $3x$

(ii) Terms in $2x-3$ are $2x, -3$

(iii) Terms in $2x^2-7$ are $2x^2, -7$

(iv) Terms in $2x^2+y^2-3xy+4$ are $2x^2, y^2, -3xy, 4$

Q3 Identify the like terms and also mention the numerical co-efficients of those terms:

(i) $4xy, -5x^2y, -3yx, 2xy^2$ (ii) $7a^2bc, -3ca^2b, -\frac{5}{2}abc^2, \frac{3}{2}abc^2, -\frac{4}{3}cba$

Solution:

	Like Terms	Co-efficients
(i)	$4xy, -3yx$	$4, -3$
(ii)	$7a^2bc, -3ca^2b, -\frac{4}{3}cba^2$	$7, -3, -\frac{4}{3}$

Q4 Identify the like terms in the following algebraic expressions:

(i) $a^2+b^2-2a^2+c^2+4a$ (ii) $3x+4xy-2yz+\frac{5}{2}xy$

(iii) $abc+ab^2c+2acb^2+3c^2ab+b^2ac-2a^2bc+3cab^2$

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Solution

(i) $a^2, -2a^2$ (ii) $-2yz, \frac{5}{2}zy$

(iii) $ab^2c, 2acb^2, b^2ac, 3cab^2$

Q.5 Write the co-efficient of x in the following

(i) $-12x$ (ii) $-7xy$ (iii) xyz (iv) $-7ax$

Solution (i) -12 (ii) $-7y$ (iii) yz (iv) $-7a$

Q6 Write the coefficient of x^2 in the following:

(i) $-3x^2$ (ii) $5x^2yz$ (iii) $\frac{5}{7}x^2z$ (iv) $-\frac{3}{2}ax^2+yx$

Solution (i) -3 (ii) $5yz$ (iii) $\frac{5}{7}z$

(iv) $-\frac{3}{2}a$

Q7 Write the co-efficient of:

(i) y in $-3y$ (ii) a in $2ab$ (iii) z in $-7xyz$

(iv) p in $-3pqr$ (v) y^2 in $9xy^2z$ (vi) x^3 in x^3+1

(vii) x^2 in $-x^2$

Solution (i) -3 (ii) $2b$ (iii) $-7xy$

(iv) $-3qr$ (v) $9xz$ (vi) 1

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Q8 Write the numerical co-efficient of each of the following.

(i) xy (ii) $-6yz$ (iii) $7abc$ (iv) $-2x^3y^2z$

Solution:

	Algebraic expression	Numerical Coeff.
(i)	xy	1
(ii)	$-6yz$	-6
(iii)	$7abc$	7
(iv)	$-2x^3y^2z$	-2

Q9 Write the numerical coefficient of each term in the following algebraic expressions:

(i) $4x^2y - \frac{3}{2}xy + \frac{5}{2}xy^2$ (ii) $-\frac{5}{3}x^2y + \frac{7}{4}xyz + 3$

Solution: (i) Numerical Co-efficients are $4, -\frac{3}{2}, \frac{5}{2}$

(ii) Numerical coefficients are $-\frac{5}{3}, \frac{7}{4}, 3$

Q10 Write the constant term of each of the following algebraic expressions:

(i) $x^2y - xy^2 + 7xy - 3$ (ii) $a^3 - 3a^2 + 7a + 5$

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Solution : (i) Constant term = -3

(ii) Constant term = 5

Q.11 Evaluate each of the following expressions for $x=-2, y=-1, z=3$

(i) $\frac{x}{y}+\frac{y}{z}+\frac{z}{x}$ (ii) $x^2+y^2+z^2-xy-yz-xz$

Solution: (i) $\frac{x}{y}+\frac{y}{z}+\frac{z}{x} = \frac{-2}{-1}+\frac{-1}{3}+\frac{3}{-2}$

$= 2-\frac{1}{3}-\frac{3}{2}$

$= \frac{2\times 6-2\times 1-3\times 3}{6} = \frac{12-2-9}{6}$

$= \frac{12-11}{6}$

$= \frac{1}{6}$

(ii) $x^2+y^2+z^2-xy-yz-xz$

$= (-2)^2+(-1)^2+(3)^2-(-2)(-1)-(-1)(3)-(-2)(3)$

$= 4+1+9-2-(-3)-(-6)$

$= 4+1+9-2+3+6$

$= 25-2 = 21$

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Q.12 Evaluate each of the following algebraic expressions for $x=1, y=-1, z=2, a=-2, b=1, c=-2$

(i) $ax+by+cz$ (ii) $ax^2+by^2-cz^2$

(iii) $axy+byz+cxy$

Solutions (i) $ax+by+cz$

$= (-2)(1)+(1)(-1)+(-2)(2)$

$= -2+(-1)+(-4) = -2-1-4 = -7$

(ii) $ax^2+by^2-cz^2 = -2(1)^2+1(-1)^2-(-2)(2)^2$

$= -2+1(1)-(-2)(4)$

$= -2+1+8 = 7$

(iii) $axy+byz+cxy = (-2)(1)(-1)+(1)(-1)(2)$

$+(-2)(1)(-1)$

$= 2-2+2 = 0+2 = 2$

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