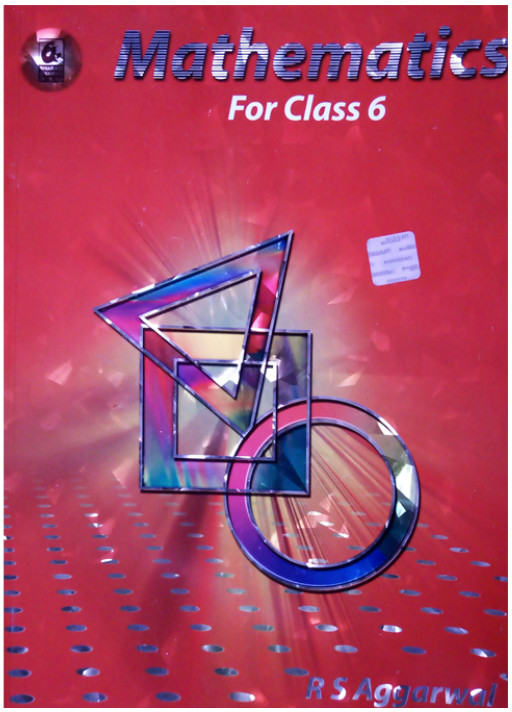
RS Aggarwal Solutions for Class 6 Maths Chapter 8–Algebraic Expressions

Class 6 - Chapter 8 Algebraic Expressions



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RS Aggarwal Solutions for Class 6 Maths Chapter 8–Algebraic Expressions

Class 6: Maths Chapter 8 solutions. Complete Class 6 Maths Chapter 8 Notes.

RS Aggarwal Solutions for Class 6 Maths Chapter 8–Algebraic Expressions

RS Aggarwal 6th Maths Chapter 8, Class 6 Maths Chapter 8 solutions

Ex 8A Solutions

Question 1.

Solution:

(i) x + 12

(ii) y – 7

(iii) a – b

(iv) (x + y) + xy

(v) 13x (a + b)

(vi) 7y + 5x

(vii) x+y5

(viii) 4 – x

(ix) xy−2

(x) x^2

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(xi) 2x + y

(xii) y^2 + 3x

(xiii) x – 2y

(xiv) $y^3 – x^3$

(xv) x8×y

Question 2.

Solution:

Marks scored in English = 80

Marks scored in Hindi = x

∴ Total score in the two subjects = 80 + x

Question 3.

Solution:

We can write :

(i) b × b × b ×….15 times = 6^{15}

(ii) y × y × y ×…..20 times = y^{20}

(iii) 14 × a × a × a × a × b × b × b= $14a^4$ b^3

(iv) 6 × x × x × y × y = $6x^2y^2$

(v) 3 × z × z × z × y × y × x= $3z^3y^2x$

Question 4.

Solution:

We can write :

(i) $x^2y^4 = x \times x \times y \times y \times y \times y$

(ii) $6y^5 = 6 \times y \times y \times y \times y \times y$

(iii) $9xy^2z = 9 \times x \times y \times y \times z$

(iv) $10a^3b^3c^3 = 10 \times a \times a \times a \times b \times b \times b \times c \times c \times c$

Ex 8B Solutions

Question 1.

Solution:

(i) Substituting a = 2 and b = 3 in the , given expression, we get :

$a + b = 2 + 3 = 5$

(ii) Substituting a = 2 and b = 3 in the given expression, we get :

$a^2 + ab = (2)^2 + 2 \times 3$

$= 4 + 6 = 10$

(iii) Substituting a = 2 and b = 3 in the given expression, we get :

$ab – a^2 = 2 \times 3 – (2)^2$

$= 6 – 4 = 2$

(iv) Substituting a = 2 and b = 3 in the given expression, we get :

$2a – 3b = 2 \times 2 – 3 \times 3$

$= 4 – 9 = – 5$

(v) Substituting a = 2 and b = 3 in the given expression, we get :

$5a^2 – 2ab = 5 \times (2)^2 – 2 \times 2 \times 3$

$= 5 \times 4 – 4 \times 3$

= 20 – 12 = 8

(vi) Substituting a = 2 and b = 3 in the given expression, we get :

$a^3 – b^3 = (2)^3 – (3)^3 = 2 \times 2 \times 2 – 3 \times 3 \times 3$

= 8 – 27 = – 19

Question 2.

Solution:

(i) Substituting x = 1, y = 2 and z = 5 in the given expression, we get :

$3x – 2y + 4z = 3 \times 1 – 2 \times 2 + 4 \times 5$

= 3 – 4 + 20 = 23 – 4 = 19

(*ii*) Substituting $x = 1$, $y = 2$ and $z = 5$ in the given expression, we get :

$$x^2 + y^2 + z^2 = (1)^2 + (2)^2 + (5)^2$$
$$= 1 + 4 + 25 = 30$$

(*iii*) Substituting $x = 1$, $y = 2$ and $z = 5$ in the given expression, we get :

$$2x^2 - 3y^2 + z^2 = 2 \times (1)^2 - 3 \times (2)^2 + (5)^2$$
$$= 2 \times 1 - 3 \times 4 + 25$$
$$= 2 - 12 + 25$$
$$= 27 - 12 = 15.$$

(*iv*) Substituting $x = 1$, $y = 2$ and $z = 5$ in the given expression, we get :

$$xy + yz - zx = 1 \times 2 + 2 \times 5 - 5 \times 1$$
$$= 2 + 10 - 5$$
$$= 12 - 5 = 7.$$

(*v*) Substituting $x = 1$, $y = 2$ and $z = 5$ in the given expression, we get :

$$2x^2y - 5yz + xy^2 = 2 \times (1)^2 \times 2 - 5 \times 2 \times 5 + 1 \times (2)^2$$
$$= 2 \times 1 \times 2 - 10 \times 5 + 1 \times 4$$
$$= 4 - 50 + 4$$
$$= 8 - 50 = -42$$

(*vi*) Substitutng $x = 1$, $y = 2$ and $z = 5$ in the given expression, we get :

$$x^3 - y^3 - z^3 = (1)^3 - (2)^3 - (5)^3$$
$$= (1 \times 1 \times 1) - (2 \times 2 \times 2) - (5 \times 5 \times 5)$$
$$= 1 - 8 - 125$$
$$= 1 - 133 = -132$$

Question 3.

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Solution:

(i) Substituting p = – 2, q = – 1 and r = 3

in the given expression, we get :

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$p^2 + q^2 - r^2 = (-2)^2 + (-1)^2 - (3)^2$

$= 4 + 1 - 9$

$= 5 - 9 = -4$

(*ii*) Substituting $p = -2$, $q = -1$ and $r = 3$ in the given expression, we get :

$2p^2 - q^2 + 3r^2 = 2 \times (-2)^2 - (-1)^2 + 3 \times (3)^2$

$= 2 \times 4 - 1 + 3 \times 9$

$= 8 - 1 + 27 = 34$

(*iii*) Substituting $p = -2$, $q = -1$ and $r = 3$ in the given expression, we get :

$p - q - r = (-2) - (-1) - 3$

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

(*iv*) Substituting $p = -2$, $q = -1$ and $r = 3$ in the given expression, we get :

$p^3 + q^3 + r^3 + 3pqr = (-2)^3 + (-1)^3 + (3)^3 + 3 \times (-2) \times (-1) \times 3$

$= (-8) + (-1) + 27 + 18$

$= -8 - 1 + 27 + 18$

$= -9 + 45 = 36$

(*v*) Substituting $p = -2$, $q = -1$ and $r = 3$ in the given expression, we get :

$3p^2q + 5pq^2 + 2pqr = 3 \times (-2)^2 \times (-1) + 5 \times (-2) \times (-1)^2 + 2 \times (-2) \times (-1) \times 3$

$= 3 \times 4 \times (-1) + 5 \times (-2) \times 1 + 12$

$= -12 - 10 + 12 = -10$

(*vi*) Substituting $p = -2$, $q = -1$ and $r = 3$ in the given expression, we get :

$p^4 + q^4 - r^4 = (-2)^4 + (-1)^4 - (3)^4$

$= 16 + 1 - 81$

$= 17 - 81 = -64$

Question 4.

Solution:

(i) The coefficient of x in 13x is 13

(ii) The coefficient of y in – 5y is – 5

(iii) The coefficient of a in 6ab is 6b

(iv) The coefficient of z in – 7xz is – 7x

(v) The coefficient of p in – 2pqr is – 2qr

(vi) The coefficient of y^2 in $8xy^2z$ is 8xz

(vii) The coefficient of x^3 in x^3 is 1

(viii) The coefficient of x^2 in $– x^2$ is -1

Question 5.

Solution:

(i) The numerical coefficient of ab is 1

(ii) The numerical coefficient of – 6bc is – 6

(iii) The numerical coefficient of 7xyz is 7

(iv) The numerical coefficient of $– 2x^3y^2z$ is – 2.

Question 6.

Solution:

(i) The constant term is 8

(ii) The constant term is – 9

(iii) The constant term is 35

(iv) The constant term is –83

Question 7.

Solution:

(i) The given expression contains only one term, so it is monimial.

(ii) The given expression contains only two terms, so it is binomial.

(iii) The given expression contains only one term, so it is monomial.

(iv) The given expression contains three terms, so it is trinomial.

(v) The given expression contains three terms, so it is trinomial.

(vi) The given expression contains only one term, so it is monomial.

(vii) The given expression contains four terms, so it is none of monomial, binomial and trinomial.

(viii) The given expression contains only one term so it is monomial.

(ix) The given expression contains two terms, so it is binomial.

Question 8.

Solution:

(i) The terms of the given expression $4x^5 – 6y^4 + 7x^2y – 9$ are :

$4x^5$, $– 6y^4$, $7x^2y$, $– 9$

(ii) The terms of the given expression $9x^3 – 5z^4 + 7x^3y – xyz$ are :

$9x^3$, $– 5z^4$, $7x^3y$, $– xyz$.

Question 9.

Solution:

(i) We have : a^2, b^2, $– 2a^2$, c^2, $4a$

Here like terms are a^2, $– 2a^2$

(ii) We have : $3x$, $4xy$, $– yz$, $12\ zy$

Here like terms are $– yz$, $12\ zy$

(iii) We have : $– 2xy^2$, x^2y, $5y^2x$, x^2z

Here like terms are $– 2xy^2$, $5y^2x$

(iv) We have :

abc, ab^2c, acb^2, c^2ab, b^2ac, a^2bc, cab^2

Here like terms are ab^2c, acb^2, b^2ac, cab^2.

Ex 8C Solutions

Question 1.

Solution:

(i) The required sum

= 3x + 7x

= (3 + 7) x

= 10x

(*ii*) The required sum

$= 7y + (-9y) = 7y + (-9)\,y$

$= (7 - 9)\,y = -2y$

(*iii*) The required sum

$= 2xy + 5xy + (-xy)$

$= (2 + 5 - 1)\,xy = 6xy$

(*iv*) The required sum $= 3x + 2y$

(*v*) The required sum $= 2x^2 + (-3x^2) + 7x^2$

$= (2 - 3 + 7)x^2 = 6x^2$

(*vi*) The required sum

$= 7xyz + (-5xyz) + 9xyz + (-8xyz)$

$= (7 - 5 + 9 - 8)xyz$

$= (16 - 13)xyz = 3xyz$

(*vii*) The required sum

$= 6a^3 + (-4a^3) + 10a^3 + (-8a^3)$

$= 6a^3 + (-4)\,a^3 + 10a^3 + (-8)a^3$

$= [6 + (-4) + 10 + (-8)]\,a^3$

$= [16 + (-12)]\,a^3 = 4a^3$

(*viii*) The required sum

$= x^2 - a^2 + (-5x^2 + 2a^2) + (-4x^2 + 4a^2)$

$= x^2 - a^2 - 5x^2 + 2a^2 - 4x^2 + 4a^2$

$= x^2 - 5x^2 - 4x^2 + (-a^2 + 2a^2 + 4a^2)$

$= (1 - 5 - 4)\,x^2 + (-1 + 2 + 4)\,a^2$

$= -8x^2 + 5a^2$

Question 2.

Solution:

(i) Adding columnwise,

we get

$$\begin{array}{r} x - 3y - 2z \\ 5x + 7y - z \\ -7x - 2y + 4z \\ \hline -x + 2y + z \end{array}$$

(*ii*) Adding columnwise, we get

$$\begin{array}{r} m^2 - 4m + 5 \\ -2m^2 + 6m - 6 \\ -m^2 - 2m - 7 \\ \hline -2m^2 + 0 - 8 \end{array}$$

$= -2m^2 - 8$

(*iii*) Adding columnwise, we get

$$\begin{array}{r} 2x^2 - 3xy + y^2 \\ -7x^2 - 5xy - 2y^2 \\ 4x^2 + xy - 6y^2 \\ \hline -x^2 - 7xy - 7y^2 \end{array}$$

(*iv*) Adding columnwise, we get

$$\begin{array}{r} 4xy - 5yz - 7zx \\ -5xy + 2yz + zx \\ -2xy - 3yz + 3zx \\ \hline -3xy - 6yz - 3zx \end{array}$$

Question 3.

Solution:

(i) Arranging the like terms column wise and adding, we get :

$$\begin{array}{r} 3a - 2b + 5c \\ 2a + 5b - 7c \\ -a - b + c \\ \hline 4a + 2b - c \end{array}$$

(*ii*) Arranging the like terms columnwise and adding, we get :

$$\begin{array}{r} 8a - 6ab + 5b \\ -6a - ab - 8b \\ -4a + 2ab + 3b \\ \hline -2a - 5ab + 0 \end{array}$$

$= -2a - 5ab$

(*iii*) Arranging the like terms columnwise and adding, we get :

$$\begin{array}{r} 2x^3 - 3x^2 + 7x - 8 \\ -5x^3 + 2x^2 - 4x + 1 \\ -x^3 + 5x^2 - 6x + 3 \\ \hline -4x^3 + 4x^2 - 3x - 4 \end{array}$$

(*iv*) Arranging the like terms columnwise and adding, we get :

$$\begin{array}{r} 2x^2 - 8xy + 7y^2 - 8xy^2 \\ 3x^2 + 6xy - y^2 + 2xy^2 \\ -x^2 - xy + 4y^2 + xy^2 \\ \hline 4x^2 - 3xy + 10y^2 - 5xy^2 \end{array}$$

(v) Arranging the like terms columnwise and adding, we get :

$$\begin{array}{r} x^3 + y^3 - z^3 + 3xyz \\ -x^3 + y^3 + z^3 - 6xyz \\ x^3 - y^3 - z^3 - 8xyz \\ \hline x^3 + y^3 - z^3 - 11xyz \\ \hline \end{array}$$

(vi) Arranging the like terms columnwise and adding, we get :

$$\begin{array}{r} 2 + x - x^2 + 6x^3 \\ -6 - 2x + 4x^2 - 3x^3 \\ 2 \qquad\qquad + x^2 \\ 3 + 4x - 2x^2 - x^3 \\ \hline 1 + 3x + 2x^2 + 2x^3 \\ \hline \end{array}$$

Question 4.

Solution:

(i) We have :

$2x - 5x = (2 - 5)x = -3x$

(ii) We have :

$6x - y - (-xy) = 6xy + xy = 7xy$

(iii) We have : $5b - 3a$

(iv) We have : $9y - (-7x) = 9y + 7x$

(v) We have : $-7x^2 - 10x^2 = (-7 - 10)x^2$

$= -17x^2$

(vi) We have : $b^2 - a^2 - (a^2 - b^2)$

$= b^2 – a^2 – a^2 + b^2$

$= b^2 + b^2 – a^2 – a^2$

$= (1 + 1) b^2 + (– 1 – 1) a^2$

$= 2b^2 – 2a^2$

Question 5.

Solution:

(i) Arranging the like terms column wise, we get :

$3a - 7b + 4c$

$5a + 7b - 2c$

$-\quad -\quad +$

(Change the sign of each term and add)

$-2a - 14b + 6c$

(*ii*) Arranging the like terms columnwise, we get :

$-2a + 5b - 4c$

$a - 2b - 3c$

$-\quad +\ +$

(Change the sign of each term and add)

$-3a + 7b - c$

(*iii*) Arranging the like terms columnwise, we get :

$7x^2 - 2xy - 4y^2$

$5x^2 - 3xy + y^2$

$-\quad +\quad -$

(Change the sign of each term and add)

$2x^2 + xy - 5y^2$

(*iv*) Arranging the like terms columnwise, we get :

$-8x^3 + 6x^2 - 5x + 4$

$6x^3 - 7x^2 + 5x - 3$

$-\quad +\quad -\quad +$

(Change the sign of each term and add)

$-14x^3 + 13x^2 - 10x + 7$

$= 7 - 10x + 13x^2 - 14x^3$

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(v) Arranging the like terms columnwise, we get :

$$y^3 - 3xy^2 - 4x^2y$$
$$-y^3 + 6xy^2 + 2x^2y + x^3$$
$$+ \quad - \quad - \quad -$$

(Change the sign of each term and add)

$$2y^3 - 9xy^2 - 6x^2y - x^3$$

(vi) Arranging the like terms columnwise, we get :

$$9x^2y^2 - 6xy + 9$$
$$-11x^2y^2 + 7xy - 6$$
$$+ \quad - \quad +$$

(Change the signof each term and add)

$$20x^2y^2 - 13xy + 15$$

(vii) Arranging the like terms columnwise, we get :

$$5a - 2b - 3c$$
$$-2a + b + 6d$$
$$+ \quad - \quad -$$

(Change the sign of each term and add)

$$7a - 3b - 3c - 6d$$

Question 6.

Solution:

(i) Rearranging and collecting the like terms, we get :

$2p^3 - 3p^2 + 4p - 5 - 6p^3 + 2p^2 - 8p - 2$
$+ 6p + 8$
$= 2p^3 - 6p^3 - 3p^2 + 2p^2 + 4p - 8p + 6p$
$- 5 - 2 + 8$
$(2 - 6)p^3 + (- 3 + 2)p^2 + (4 - 8 + 6)\, p$
$+ (- 5 - 2 + 8)$
$= - 4p^3 - p^2 + 2p + 1$

(*ii*) Rearranging and collecting the like terms, we get :

$2x^2 - xy + 6x - 4y + 5xy - 4x + 6x^2 + 3y$
$= 2x^2 + 6x^2 - xy + 5xy + 6x - 4x - 4y$
$+ 3y$
$= (2 + 6)\, x^2 + (- 1 + 5)\, xy + (6 - 4)\, x$
$+ (- 4 + 3)\, y$
$= 8x^2 + 4xy + 2x - y$

(*iii*) Rearranging and collecting like terms, we get :

$x^4 - 6x^3 + 2x - 7 + 7x^3 - x + 5x^2 + 2 - x^4$
$= x^4 - x^4 - 6x^3 + 7x^3 + 5x^2 + 2x - x$
$- 7 + 2$
$= (1 - 1)x^4 + (- 6 + 7)\, x^3 + 5x^2$
$+ (2 - 1)\, x + (- 7 + 2)$
$= 0 \times x^4 + x^3 + 5x^2 + x - 5$
$= x^3 + 5x^2 + x - 5 \qquad (0 \times x^4 = 0)$

Question 7.

Solution:

We have:

$$\begin{array}{rl} 3x^2 - 5x + 2 & \\ -5x^2 - 8x + 6 & \text{(add)} \\ \hline -2x^2 - 13x + 8 & \\ 4x^2 - 9x + 7 & \text{(subtract)} \\ - \quad + \quad - & \\ \hline -6x^2 - 4x + 1 & \end{array}$$

Question 8.

Solution:

We have :

$A = 7x^2 + 5xy - 9y^2$

$B = -4x^2 + xy + 5y^2$

$C = 4y^2 - 3x^2 - 6xy$

Adding, we get

$$\begin{aligned} A + B + C &= 7x^2 + 5xy - 9y^2 - 4x^2 + xy \\ &\quad + 5y^2 + 4y^2 - 3x^2 - 6xy \\ &= 7x^2 - 4x^2 - 3x^2 + 5xy + xy - 6xy - 9y^2 \\ &\quad + 5y^2 + 4y^2 \\ &= (7 - 4 - 3)\,x^2 + (5 + 1 - 6)\,xy + (-9 \\ &\quad + 5 + 4)\,y^2 \\ &= (7 - 7)\,x^2 + (6 - 6)\,xy + (-9 + 9)\,y^2 \\ &= 0 \times x^2 + 0 \times xy + 0 \times y^2 \end{aligned}$$

= 0+0+0 = 0

Hence the result

Question 9.

Solution:

Required expression

$$= x^3 + 3x^2 - x + 1$$

Minus $\quad 5x^3 - 2x^2 + 6x + 7$

$\quad - \quad + \quad - \quad -$

(Change the sign of each term and add)

$$-4x^3 + 5x^2 - 7x - 6$$

Question 10.

Solution:

Substituting the values of P, Q, R and S, we have :

$P + Q + R + S = (a^2 - b^2 + 2ab)$

$$+ (a^2 + 4b^2 - 6ab) + (b^2 + 6) + (a^2 - 4ab)$$
$$= (a^2 + a^2 + a^2) + (-b^2 + 4b^2 + b^2) + (2ab - 6ab - 4ab) + 6$$
$$= (1 + 1 + 1)\,a^2 + (-1 + 4 + 1)\,b^2 + (2 - 6 - 4)\,ab + 6$$
$$= 3a^2 + 4b^2 - 8ab + 6$$

$\therefore$ P + Q + R + S − T

$$= 3a^2 + 4b^2 - 8ab + 6$$

minus $\quad -2a^2 + b^2 - ab + a$

$\quad + \quad - \quad + \quad -$

(Change the sign of each term and add)

$$5a^2 + 3b^2 - 7ab - a + 6$$

Question 11.

Solution:

Required expression

$$= a^3 - 4a^2 + 5a - 6$$
$$\text{minus} \quad a^2 - 2a + 1$$
$$- \quad + \quad -$$

(Change the sign of each term and add)

$$a^3 - 5a^2 + 7a - 7$$

Question 12.

Solution:

Required expression

$$= a + 2b - 3c$$
$$\text{minus } 2a - 3b + c$$
$$- \quad + \quad -$$

(Change the sign of each term and add)

$$-a + 5b - 4c$$

Question 13.

Solution:

Required expression

$= x - 2y + 3z$

minus $2x - 4y - z$

$-\quad +\quad +$

(Change the sign of each term and add)

$-x + 2y + 4z$

Question 14.

Solution:

Required expression

$= 3x^2 - 5x + 6$

minus $x^3 - x^2 + 4x - 1$

$-\quad +\quad -\quad +$

(Change the sign of each term and add)

$-x^3 + 4x^2 - 9x + 7$

Question 15.

Solution:

Sum of 5x – 4y + 6z and – 8x + y – 2z

= 5x – 4y + 6z – 8x + y – 2z

= 5x – 8x – 4y + y + 6z – 2z

= – 3x – 3y + 4z

Sum of 12x – y + 3z and – 3x + 5y – 8z

= 12x – y + 3z – 3x + 5y – 8z

= 12x – 3x – y + 5y + 3z – 8z

= 9x + 4y – 5z

$\therefore$ Required expression

$= 9x + 4y - 5z$

minus $-3x - 3y + 4z$

$+ \quad + \quad -$

(Change the sign of each term and add)

$12x + 7y - 9z$

Question 16.

Solution:

Required expression

$= 2x - 3y + 4z$

minus $2x + 5y - 6z + 2$

$- \quad - \quad + \quad -$

(Change the sign of each term and add)

$0 - 8y + 10z - 2$

Question 17.

Solution:

Required expression

$$= 1$$

$$\text{minus} \quad 2x - 3y - 4$$

$$- \quad + \quad +$$

(Change sign of each term and add)

$$\underline{-2x + 3y + 5}$$

$$= 5 - 2x + 3y$$

Ex 8D Solutions

Simplify :

Question 1.

Solution:

We have : a – (b – 2a)

= a – b + 2a

= a + 2a – b

= (1 + 2) a – b

= 3a – b.

Question 2.

Solution:

We have : 4x – (3y – x + 2z)

= 4x – 3y + x – 2z

= 4x + x – 2y – 2z

= 5x – 3y – 2z

Question 3.

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Solution:

We have :

$(a^2 + b^2 + 2ab) – (a^2 + b^2 – 2ab)$

$= a^2 + b^2 + 2ab – a^2 – b^2 + 2ab$

$= a^2 – a^2 + b^2 – b^2 + 2ab + 2ab$

$= 0 + 0 + (2 + 2)\ ab$

$= 4\ ab$

Question 4.

Solution:

We have :

$– 3\ (a + b) + 4\ (2a – 3b) – (2a – b)$

$= – 3a – 3b + 8a – 12b – 2a + b$

$= – 3a + 8a – 2a – 3b – 12b + b$

$= (– 3 + 8 – 2)\ a + (– 3 – 12 + 1)\ b$

$= 3a – 14\ b.$

Question 5.

Solution:

We have :

$– 4x^2 + \{(2x^2 – 3) – (4 – 3x^2)\}$

$= – 4x^2 + \{2x^2 – 3 – 4 + 3x^2\}$

[removing grouping symbol]

$= -4x^2 + \{5x^2 - 7)$

$= -4x^2 + 5x^2 - 7$

(removing grouping symbol {})

$= x^2 - 7$

Question 6.

Solution:

We have :

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

$= -2x^2 + 2y^2 - 2xy - 3x^2 - 3y^2 + 3xy$

$= -2x^2 - 3x^2 + 2y^2 - 3y^2 - 2xy + 3xy$

$= (-2 - 3)x^2 + (2 - 3)y^2 + (-2 + 3)xy$

$= -5x^2 - y^2 + xy$

Question 7.

Solution:

$a - [2b - \{3a - (2b - 3c)\}]$

$= a - [2b - \{3a - 2b + 3c\}]$

[removing grouping symbol( )]

$= a - [2b - 3a + 2b - 3c]$

(removing grouping symbol {})

$= a - [4b - 3a - 3c]$

$= a - 4b + 3a + 3c$

(removing grouping symbol [ ])

= 4a – 4b + 3c

Question 8.

Solution:

Removing the innermost grouping symbol ( ) first, then { } and then [ ], we have :

– x + [5y – {x – (5y – 2x)}]

= – x + [5y – {x – 5y + 2x}]

= – x + [5y – {3x – 5y}]

= – x + [5y – 3x + 5y]

= – x + [10y – 3x]

= – x + 10y – 3x

= – x – 3x + 10y

= – 4x + 10y

Question 9.

Solution:

Removing the innermost grouping symbol ( ) first, then { } and then [ ], we have :

86 – [15x – 7 (6x – 9) – 2 {10x – 5(2 – 3x)}]

= 86 – [15x – 42x + 63 – 2 {10x – 10 + 15x}

= 86 – [15x – 42x + 63 – 2 {25x – 10}]

= 86 – [15x – 42x + 63 – 50x + 20]

= 86 – 15x + 42x – 63 + 50x – 20

= (86 – 63 – 20) – 15x + 42x + 50x

= (86 – 83) + (- 15 + 42 + 50) x

= 3 + 77x

Question 10.

Solution:

Removing the innermost grouping ' symbol () first, then { } and then [ ], we have :

$12x – [3x^3 + 5x^2 – \{7x^2 – (4 – 3x – x^3) + 6x^3\} – 3x]$

$= 12x – [3x^3 – 5x^2 – \{7x^2 – 4 + 3x + x^3 + 6x^3\} – 3x]$

$= 12x – [3x^3 + 5x^2 – \{7x^2 – 4 + 3x + 7x^3\} – 3x]$

$= 12x – [3x^3 + 5x^2 – 7x^2 + 4 – 3x – 7x^3 – 3x]$

$= 12x – [3x^3 – 7x^3 + 5x^2 – 7x^2 + 4 – 3x – 3x]$

$= 12x – [– 4x^3 + 2x^2 + 4 – 6x]$

$= 12x + 4x^3 + 2x^2 – 4 + 6x$

$= 12x + 6x + 4x^3 + 2x^2 – 4$

$= 18x + 4x^3 + 2x^2 – 4$

$= 4x^3 + 2x^2 + 18x – 4$

Question 11.

Solution:

Removing the innermost grouping symbol ( ) first, then { } and then [ ], we have

$5a – [a^2 – \{2a (1 – a + 4a^2) – 3a (a^2 – 5a – 3)\}] – 8a$

$= 5a – [a^2 – \{2a – 2a^2 + 8a^3 – 3a^3 + 15a^2 + 9a\}] – 8a$

$= 5a – [a^2 – \{2a + 9a – 2a^2 + 15a^2 + 8a^3 – 3a^3\}] – 8a$

$= 5a – [a^2 – \{11a + 13a^2 + 5a^3\}] – 8a$

$= 5a – [a^2 – 11a – 13a^2 – 5a^3] – 8a$

$= 5a – a^2 + 11a + 13a^2 + 5a^3 – 8a$

$= 5a + 11a – 8a – a^2 + 13a^2 + 5a^3$

$= 8a + 12a^2 + 5a^3$

$= 5a3 + 12a^2 + 8a.$

Question 12.

Solution:

Removing the innermost grouping symbol ( ) first, then { } and then [ ], we have :

$3 – [x – \{2y – (5x + y – 3) + 2x^2\} – (x^2 – 3y)]$

$= 3 – [x – \{2y – 5x – y + 3 + 2x^2\} – x^2 + 3y]$

$= 3 – [x – \{y – 5x + 3 + 2x^2\} – x^2 + 3y]$

$= 3 – [x – y + 5x – 3 – 2x^2 – x^2 + 3y]$

$= 3 – [6x + 2y – 3 – 3x^2]$

$= 3 – 6x – 2y + 3 + 3x^2$

$= 6 – 6x – 2y + 3x^2$

Question 13.

Solution:

Removing the innermost grouping symbol ( ) first, then { } and then [ ], we have :

$xy – [yz – zx – \{yx – (3y – xz\} – (xy – zy)\}]$

= xy – [yz – zx – {yx – 3y + xz – xy + zy}]

= xv – [yz – zx – {- 3y + xz + zy}]

= xy – [yz – zx + 3y – xz – zy]

= xy – [– 2xz + 3y]

= xy + 2xz – 3y

Question 14.

Solution:

Removing the innermost grouping symbol ( ) first, then { } and then [ ], we have

2a – 3b – [3a – 2b – {a – c – (a – 2b)}]

= 2a – 3b – [3a – 2b – {a – c – a + 2b}]

= 2a – 3b – [3a – 2b – { – c + 2b}]

= 2a – 3b – [3a – 2b + c – 2b]

= 2a – 3b – 3a + 2b – c + 2b

= 2a – 3a – 3b + 2b + 2b – c

= – a + b – c

Question 15.

Solution:

Removing the innermost grouping symbol () first, then { } and ten [ ], we have:

– a – [a + {a + b – 2a – (a – 2b)} – b]

= – a – [a + {a + b – 2a – a + 2b} – b]

= – a – [a + { – 2a + 3b} – b]

= – a – [a – 2a + 3b – b]

= – a – a + 2a – 3b + b

= – 2a + 2a – 2b

= – 2 b

Question 16.

Solution:

Removing the innermost grouping symbol '—' first, then ( ), then { } and then [ ], we have

2a – [4b – {4a – (3b – 2a+2b$\overline{\qquad\qquad\qquad}$)}]

= 2a – [4b – {4a – (3b – 2a – 2b)}]

= 2a – [4b – {4a – (b – 2a)}]

= 2a – [4b – {4a – b + 2a}]

= 2a – [4b – {6a – b}]

= 2a – [4b – 6a + b]

= 2a – [5b – 6a]

= 2a – 5b + 6a

= 8a – 5b.

Question 17.

Solution:

Removing the innermost grouping < symbol ( ) first, then { } and then [ ], we have :

5x – [4y – {7x – (3z – 2y) + 4z – 3(x + 3y – 2z)}]

= 5x – [4y – {7x – 3z + 2y + 4z – 3x – 9y + 6z}]

= 5x – [4y – {4x + 7z – 7y}]

= 5x – [4y – 4x – 7z + 7y]

= 5x – [11y – 4x – 7z]

= 5x – 11y + 4x + 7z

= 9x – 11y + 7z

RS Aggarwal Class 6 Solutions

- Chapter 1–Number System
- Chapter 2–Factors and Multiples
- Chapter 3–Whole Numbers
- Chapter 4–Integers
- Chapter 5–Fractions
- Chapter 6–Simplification
- Chapter 7–Decimals
- Chapter 8–Algebraic Expressions
- Chapter 9–Linear Equations in One Variable
- Chapter 10–Ratio, Proportion and Unitary Method
- Chapter 11–Line Segment, Ray and Line
- Chapter 12–Parallel Lines
- Chapter 13–Angles and Their Measurement
- Chapter 14–Constructions (Using Ruler and a Pairs of Compasses)
- Chapter 15–Polygons
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- Chapter 18–Circles
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- Chapter 21–Concept of Perimeter and Area
- Chapter 22–Data Handling
- Chapter 23–Pictograph
- Chapter 24–Bar Graph

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