RD SHARMA

Solutions

Class 8 Maths

Chapter *7*

Ex *7.3*

Factorize each of the following algebraic expressions :

Q.1) $6x(2x-y)+7y(2x-y)$

Soln.:

$6x(2x-y)+7y(2x-y)$

$=(6x+7y)(2x-y)$ (taking $(2x-y)$ as common factor)

Q.2) $2r(y-x)+s(x-y)$

Soln.:

$2r(y-x)+s(x-y)$

$=2r(y-x)-s(y-x)$ [since, $(x-y)=-(y-x)$]

$=(2r-s)(y-x)$ [taking $(y-x)$ as the common factor]

Q.3) $7a(2x-3)+3b(2x-3)$

Soln.:

$7a(2x-3)+3b(2x-3)$

$=(7a+3b)(2x-3)$ [taking $(2x-3)$ as the common factor]

Q.4) $9a(6a-5b)-12a^2(6a-5b)$

Soln.:

$9a(6a-5b)-12a^2(6a-5b)$

$=(9a-12qa^2)(6a-5b)$ [taking $(6a-5b)$ as the common factor]

$=3a(3-4a)(6a-5b)$ [taking 3a as the common factor of the quadratic eqn. $(9a-12a^2)$]

Q.5) $5(x-2y)^2+3(x-2y)$

Soln.:

$5(x-2y)^2+3(x-2y)$

$=[(x-2y)+3](x-2y)$ [taking $(x-2y)$ as the common factor]

$=(5x-10y+3)(x-2y)$

Q.6) $16(2L-3m)^2-12(3m-2L)$

Soln.:

$16(2L-3m)^2-12(3m-2L)$

$=16(2L-3m)^2+12(2L-3m)$ [$(3m-2L)=-(2L-3m)$]

$=[16(2L-3m)+12](2L-3m)$ [taking $(2L-3m)$ as the common factor]

$=4[4(2L-3m)+3](2L-3m)$ [taking 4 as the common factor $(16(2L-3m)+12)$]

$=4(8L-12m+3)(2L-3m)$

Q.7) $3a(x-2y)-b(x-2y)$

Soln.:

$3a(x-2y)-b(x-2y)$

$=(3a-b)(x-2y)$ [taking $(x-2y)$ as the common factor]

Q.8) $a^2(x+y)+b^2(x+y)+c^2(x+y)$

Soln.:

$a^2(x+y)+b^2(x+y)+c^2(x+y)$

$=(a^2+b^2+c^2)(x+y)$ [taking $(x+y)$ as the common the factor]

Q.9) $(x-y)^2 + (x-y)$

Soln.:

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

$= (x-y)(x-y) + (x-y)$ [taking $(x-y)$ as the common factor]

$= (x-y+1)(x-y)$

Q.10) $6(a+2b) - 4(a+2b)^2$

Soln.:

$6(a+2b) - 4(a+2b)^2$

$= [6-4(a+2b)](a+2b)$ [taking $(a+2b$ as the common factor)]

$= 2[3-2(a+2b)](a+2b)$ [taking 2 as the common factor of $[6-4(a+2b)]$]

$= 2(3-2a-4b)(a+2b)$

Q.11) $a(x-y) + 2b(y-x) + c(x-y)^2$

Soln.:

$a(x-y) + 2b(y-x) + c(x-y)^2$

$= a(x-y) - 2b(x-y) + c(x-y)^2$ [$(y-x) = -(x-y)$]

$= [a-2b+c(x-y)](x-y)$

$= (a-2b+cx-cy)(x-y)$

Q.12) $-4(x-2y)^2 + 8(x-2y)$

Soln.:

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

$= [-4(x-2y)+8](x-2y)$ [taking $(x-2y)$ as the common factor]

$= 4[-(x-2y)+2](x-2y)$ [taking 4 as the common factor of $[-4(x-2y)+8]$]

$= 4(2y-x+2)(x-2y)$

Q.13) $x^3(a-2b) + x^2(a-2b)$

Soln.:

$x^3(a-2b) + x^2(a-2b)$

$= (x^3+x^2)(a-2b)$ [taking $(a-2b)$ as the common factor]

$= x^2(x+1)(a-2b)$ [taking x^2 as the common factor of (x^3+x^2)]

Q.14) $(2x-3y)(a+b) + (3x-2y)(a+b)$

Soln.:

$(2x-3y)(a+b) + (3x-2y)(a+b)$

$= (2x-3y+3x-2y)(a+b)$ [taking $(a+b)$ as the common factor]

$= (5x-5y)(a+b)$

$= 5(x-y)(a+b)$ [taking 5 as the common factor of $(5x-5y)$]

Q.15) $4(x+y)(3a-b) + 6(x+y)(2b-3a)$

Soln.:

$4(x+y)(3a-b) + 6(x+y)(2b-3a)$

$= 2(x+y)[2(3a-b) + 3(2b-3a)]$ [taking $(2(x+y))$ as the common factor]

$= 2(x+y)(6a-2b+6b-9a)$

$= 2(x+y)(4b-3a)$