Exercise 7.3

Factorise each of the following expressions.

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

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

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

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

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

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

$= (6a-5b) \times 3a(3-4a)$

$= 3a(6a-5b)(3-4a)$

5 $5(x-2y)^2+3(x-2y) = (x-2y)\{5(x-2y)+3\}$

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

6 $16(2l-3m)^2-12(3m-2l) = 16(2l-3m)^2+12(2l-3m)$

$= 4(2l-3m)\{4(2l-3m)+3\}$

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

7 $3a(x-2y)-b(x-2y) = (x-2y)(3a-b)$

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

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

(9) $(x-y)^2 + (x-y) = (x-y)(x-y+1)$

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

Sol $= 2(a+2b)\{3 - 2(a+2b)\}$

$= 2(a+2b)\{3 - 2a - 4b\}$

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

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

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

$= (x-y)\{a - 2b + c(x-y)\}$

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

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

Sol: $4(x-2y)\{-1(x-2y) + 2\}$

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

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

$= x^2(a-2b)\{x+1\}$

$= x^2(a-2b)(x+1)$

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

$= (a+b)\{(2x-3y) + (3x-2y)\}$

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

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

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

Sol: $2(x+y)\{2(3a-b) + 3(2b-3a)\}$

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

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

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