

Exercise 7A

Q13

Answer:

We have:

$$16(2p-3q)^2 - 4(2p-3q) = (2p-3q)\{16(2p-3q) - 4\}$$
$$= (2p-3q)(32p-48q-4)$$

$$16(2p-3q)^2-4(2p-3q)=(2p-3q)(32p-48q-4)$$

Q14

Answer:

We have:

$$x(a-3) + y(3-a) = x(a-3) - y(a-3)$$

= $(a-3)(x-y)$

$$x(a-3) + y(3-a) = (a-3)(x-y)$$

Q15

Answer:

We have:

$$12(2x - 3y)^{2} - 16(3y - 2x) = 12(2x - 3y)^{2} + 16(2x - 3y)$$
$$= (2x - 3y)\{12(2x - 3y) + 16\}$$
$$= (2x - 3y)(24x - 36y + 16)$$

$$\therefore 12(2x-3y)^2-16(3y-2x)=(2x-3y)(24x-36y+16)$$

Q16

Answer:

We have:

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

Q17

Answer:

By grouping the terms:

$$ar + br + at + bt = (ar + br) + (at + bt)$$

= $r(a + b) + t(a + b)$
= $(a + b)(r + t)$

$$ar + br + at + bt = (a+b)(r+t)$$

Q18

Answer:

By suitably arranging the terms:

$$x^{2}-ax-bx+ab = x^{2}-bx-ax+ab$$

= $(x^{2}-bx)-(ax-ab)$
= $x(x-b)-a(x-b)$
= $(x-b)(x-a)$

$$\therefore x^2 - ax - bx + ab = (x - b)(x - a)$$

Q19

Answer:

By suitably arranging the terms:

$$egin{aligned} ab^2 - bc^2 - ab + c^2 &= ab^2 - ab - bc^2 + c^2 \ &= \left(ab^2 - ab\right) - \left(bc^2 - c^2\right) \ &= ab(b-1) - c^2(b-1) \ &= (b-1)\left(ab - c^2\right) \end{aligned}$$

$$ab^{2}-bc^{2}-ab+c^{2}=(b-1)(ab-c^{2})$$

Q20

Answer:

By suitably arranging the terms:

$$x^2 - xz + xy - yz = x^2 + xy - xz - yz$$

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

$$\therefore x^2 - xz + xy - yz = (x+y)(x-z)$$

Q21

Answer:

By suitably arranging the terms:

$$6ab - b^{2} + 12ac - 2bc = 6ab + 12ac - b^{2} - 2bc$$

$$= (6ab + 12ac) - (b^{2} + 2bc)$$

$$= 6a(b + 2c) - b(b + 2c)$$

$$= (b + 2c)(6a - b)$$

$$6ab - b^2 + 12ac - 2bc = (b + 2c)(6a - b)$$

Q22

Answer:

We have:

$$(x-2y)^{2} + 4x - 8y = (x-2y)^{2} + 4(x-2y)$$

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

$$= (x-2y)\{(x-2y) + 4\}$$

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

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

Q23

Answer:

We have:

$$egin{aligned} y^2 - xy(1-x) - x^3 &= y^2 - xy + x^2y - x^3 \ &= \left(y^2 - xy\right) + \left(x^2y - x^3\right) \ &= y(y-x) + x^2(y-x) \ &= (y-x)\left(y + x^2\right) \end{aligned}$$

$$x \cdot y^2 - xy(1-x) - x^3 = (y-x)(y+x^2)$$

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