

Factorisation Ex 7E

Q1

Answer :

$$(d) 7(a - 3b)(a + 3b)$$

$$(7a^2 - 63b^2) = 7(a^2 - 9b^2)$$

Q2 $7(a - 3b)(a + 3b)$

Answer :

$$(d) 2x(1 - 4x)(1 + 4x)$$

$$\begin{aligned}(2x - 32x^3) \\ &= 2x(1 - 16x^2) \\ &= 2x(1 - 4x)(1 + 4x)\end{aligned}$$

Q3

Answer :

$$(c) x(x - 12)(x + 12)$$

$$\begin{aligned}x^3 - 144x \\ &= x(x^2 - 144) \\ &= x(x - 12)(x + 12)\end{aligned}$$

Q4

Answer :

$$(d) 2(1 - 5x)(1 + 5x)$$

$$\begin{aligned}2 - 50x^2 \\ &= 2(1 - 25x^2) \\ &= 2(1 - 5x)(1 + 5x)\end{aligned}$$

Q5

Answer :

$$(a) (a + b)(a + c)$$

$$\begin{aligned} a^2 + bc + ab + ac \\ &= a^2 + ab + bc + ac \\ &= a(a + b) + c(a + b) \\ &= (a + c)(a + b) \end{aligned}$$

Q6

Answer :

$$(d) (pq - 1)(q + 1)$$

$$\begin{aligned} pq^2 + q(p - 1) - 1 \\ &= pq^2 + qp - q - 1 \\ &= pq(q + 1) - 1(q + 1) \\ &= (pq - 1)(q + 1) \end{aligned}$$

Q7

Answer :

$$(b) (a - m)(b + n)$$

$$\begin{aligned} ab - mn + an - bm \\ &= ab + an - mn - bm \\ &= a(b + n) - m(n + b) \\ &= (a - m)(b + n) \end{aligned}$$

Q8

Answer :

$$(a) (a - 1)(b - 1)$$

$$\begin{aligned} ab - a - b + 1 \\ &= a(b - 1) - 1(b - 1) \\ &= (a - 1)(b - 1) \end{aligned}$$

Q9

Answer :

$$(c) (x + y)(x - z)$$

$$\begin{aligned} x^2 - xz + xy - yz \\ &= x(x - z) + y(x - z) \\ &= (x + y)(x - z) \end{aligned}$$

Q10

Answer :

$$(c) 3(2m - 3)(2m + 3)$$

$$\begin{aligned} 12m^2 - 27 \\ &= 3(4m^2 - 9) \\ &= 3(2m - 3)(2m + 3) \end{aligned}$$

Q11

Answer :

$$(d) x(x + 1)(x - 1)$$

$$\begin{aligned} x^3 - x \\ &= x(x^2 - 1) \\ &= x(x - 1)(x + 1) \end{aligned}$$

Q12

Answer :

$$(c) (1 + a + b)(1 - a - b)$$

$$\begin{aligned} & 1 - 2ab - (a^2 + b^2) \\ &= 1 - 2ab - a^2 - b^2 \\ &= 1 - (2ab + a^2 + b^2) \\ &= 1 - (a + b)^2 \\ &= (1 - a - b)(1 + a + b) \end{aligned}$$

Q13

Answer :

$$(c) (x + 2)(x + 4)$$

$$\begin{aligned} & x^2 + 6x + 8 \\ &= x^2 + 4x + 2x + 8 \\ &= x(x + 4) + 2(x + 4) \\ &= (x + 2)(x + 4) \end{aligned}$$

Q14

Answer :

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

$$\begin{aligned} & x^2 + 4x - 21 \\ &= x^2 + 7x - 3x - 21 \\ &= x(x + 7) - 3(x + 7) \\ &= (x - 3)(x + 7) \end{aligned}$$

Q15

Answer :

$$(a) (y - 1)(y + 3)$$

$$\begin{aligned} & y^2 + 2y - 3 \\ &= y^2 + 3y - y - 3 \\ &= y(y + 3) - 1(y + 3) \\ &= (y - 1)(y + 3) \end{aligned}$$

Q16

Answer :

$$(c) (5 + x)(8 - x)$$

$$\begin{aligned} & 40 + 3x - x^2 \\ &= 40 + 8x - 5x - x^2 \\ &= 8(5 + x) - x(5 + x) \\ &= (8 - x)(x + 5) \end{aligned}$$

Q17

Answer :

$$(b) (x + 1)(2x + 3)$$

$$\begin{aligned} & 2x^2 + 5x + 3 \\ &= 2x^2 + 2x + 3x + 3 \\ &= 2x(x + 1) + 3(x + 1) \\ &= (2x + 3)(x + 1) \end{aligned}$$

Q18

Answer :

$$(c) (3a - 2)(2a - 3)$$

$$\begin{aligned} & 6a^2 - 13a + 6 \\ &= 6a^2 - 9a - 4a + 6 \\ &= 3a(2a - 3) - 2(2a - 3) \\ &= (3a - 2)(2a - 3) \end{aligned}$$

Q19

Answer :

$$\begin{aligned} & (a) (2z - 1)(2z - 3) \\ & 4z^2 - 8z + 3 \\ &= 4z^2 - 6z - 2z + 3 \\ &= 2z(2z - 3) - 1(2z - 3) \\ &= (2z - 1)(2z - 3) \end{aligned}$$

Q20

Answer :

$$(b) (1 + 8y)(3 - y)$$

$$\begin{aligned} & 3 + 23y - 8y^2 \\ &= 3 + 24y - y - 8y^2 \\ &= 3(1 + 8y) - y(1 + 8y) \\ &= (3 - y)(1 + 8y) \end{aligned}$$