



Exercise 7B

$$\therefore 63a^2b^2 - 7 = 7(3ab + 1)(3ab - 1)$$

Q16

Answer :

We have:

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

$$\therefore 1 - (b - c)^2 = (1 + b - c)(1 - b + c)$$

Q17

Answer :

We have:

$$\begin{aligned} (2a + 3b)^2 - 16c^2 &= (2a + 3b)^2 - (4c)^2 \\ &= \{(2a + 3b) + 4c\}\{(2a + 3b) - 4c\} \\ &= (2a + 3b + 4c)(2a + 3b - 4c) \end{aligned}$$

$$\therefore (2a + 3b)^2 - 16c^2 = (2a + 3b + 4c)(2a + 3b - 4c)$$

Q18

Answer :

We have:

$$\begin{aligned} (l + m)^2 - (l - m)^2 &= \{(l + m) + (l - m)\}\{(l + m) - (l - m)\} \\ &= (l + m + l - m)(l + m - l + m) \\ &= (2l)(2m) \end{aligned}$$

$$\therefore (l + m)^2 - (l - m)^2 = (2l)(2m)$$

Q19

Answer :

We have:

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

$$\therefore (2x + 5y)^2 - 1 = (2x + 5y + 1)(2x + 5y - 1)$$

Q20

Answer :

We have:

$$\begin{aligned}36c^2 - (5a + b)^2 &= (6c)^2 - (5a + b)^2 \\ &= \{(6c) + (5a + b)\}\{(6c) - (5a + b)\} \\ &= (6c + 5a + b)(6c - 5a - b)\end{aligned}$$

$$\therefore 36c^2 - (5a + b)^2 = (6c + 5a + b)(6c - 5a - b)$$

Q21

Answer :

We have:

$$\begin{aligned}(3x - 4y)^2 - 25z^2 &= (3x - 4y)^2 - (5z)^2 \\ &= \{(3x - 4y) + 5z\}\{(3x - 4y) - 5z\} \\ &= (3x - 4y + 5z)(3x - 4y - 5z)\end{aligned}$$

$$\therefore (3x - 4y)^2 - 25z^2 = (3x - 4y + 5z)(3x - 4y - 5z)$$

Q22

Answer :

We have:

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

Q23

Answer :

We have:

$$\begin{aligned}25 - a^2 - b^2 - 2ab &= 25 - (a^2 + b^2 + 2ab) \\&= 25 - (a + b)^2 \\&= (5)^2 - (a + b)^2 \\&= \{5 + (a + b)\}\{5 - (a + b)\} \\&= (5 + a + b)(5 - a - b) \\ \therefore 25 - a^2 - b^2 - 2ab &= (5 + a + b)(5 - a - b)\end{aligned}$$

Q24

Answer :

We have:

$$\begin{aligned}25a^2 - 4b^2 + 28bc - 49c^2 &= 25a^2 - (4b^2 - 28bc + 49c^2) \\&= (5a)^2 - (2b - 7c)^2 \\&= \{5a + (2b - 7c)\}\{5a - (2b - 7c)\} \\&= (5a + 2b - 7c)(5a - 2b + 7c)\end{aligned}$$

$$\therefore 25a^2 - 4b^2 + 28bc - 49c^2 = (5a + 2b - 7c)(5a - 2b + 7c)$$

Q25

Answer :

We have:

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

$$\therefore 9a^2 - b^2 + 4b - 4 = (3a + b - 2)(3a - b + 2)$$

Q26

Answer :

We have:

$$\begin{aligned}100 - (x - 5)^2 &= (10)^2 - (x - 5)^2 \\&= \{10 + (x - 5)\}\{10 - (x - 5)\} \\&= (10 + x - 5)(10 - x + 5) \\&= (5 + x)(15 - x)\end{aligned}$$

Q27

Answer :

We have:

$$\begin{aligned}\left\{(405)^2 - (395)^2\right\} &= (405 + 395)(405 - 395) \\ &= (800 \times 10) \\ &= 8000\end{aligned}$$

$$\therefore \left\{(405)^2 - (395)^2\right\} = 8000$$

Q28

Answer :

We have:

$$\begin{aligned}\left\{(7.8)^2 - (2.2)^2\right\} &= (7.8 + 2.2)(7.8 - 2.2) \\ &= (10 \times 5.6) \\ &= 56\end{aligned}$$

$$\therefore \left\{(7.8)^2 - (2.2)^2\right\} = 56$$

***** END *****