



Factorizations Ex 7.5 Q36

Answer :

$$\begin{aligned}
 & 4(xy + 1)^2 - 9(x - 1)^2 \\
 &= [2(xy + 1)]^2 - [3(x - 1)]^2 \\
 &= [2(xy + 1) - 3(x - 1)][2(xy + 1) + 3(x - 1)] \\
 &= (2xy + 2 - 3x + 3)(2xy + 2 + 3x - 3) \\
 &= (2xy - 3x + 5)(2xy + 3x - 1)
 \end{aligned}$$

Factorizations Ex 7.5 Q37

Answer :

$$\begin{aligned}
 & (2x + 1)^2 - 9x^4 \\
 &= (2x + 1)^2 - (3x^2)^2 \\
 &= [(2x + 1) - 3x^2][(2x + 1) + 3x^2] \\
 &= (-3x^2 + 2x + 1)(3x^2 + 2x + 1)
 \end{aligned}$$

We can factorise the quadratic expressions in the curved brackets as :

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

Answer :

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

Factorizations Ex 7.5 Q38

Factorizations Ex 7.5 Q39

Answer :

$$\begin{aligned}
 a^2 - b^2 + a - b &= (a^2 - b^2) + (a - b) && \text{[Grouping the terms]} \\
 &= (a + b)(a - b) + (a - b) \\
 &= (a - b)(a + b + 1) && \text{[Taking out the common factor (a - b)]}
 \end{aligned}$$

Factorizations Ex 7.5 Q40

Answer :

$$\begin{aligned} & 16a^4 - b^4 \\ &= \left(4a^2\right)^2 - \left(b^2\right)^2 \\ &= \left(4a^2 + b^2\right)\left(4a^2 - b^2\right) \\ &= \left(4a^2 + b^2\right)\left[\left(2a\right)^2 - b^2\right] \\ &= \left(4a^2 + b^2\right)\left(2a + b\right)\left(2a - b\right) \end{aligned}$$

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