Factorizations Ex 7.5 Q36

Answer :

$$4(xy+1)^2-9(x-1)^2$$
$$=[2(xy+1)]^2-[3(x-1)]^2$$
$$=[2(xy+1)-3(x-1)][2(xy+1)+3(x-1)]$$
$$=(2xy+2-3x+3)(2xy+2+3x-3)$$
$$=(2xy-3x+5)(2xy+3x-1)$$

Factorizations Ex 7.5 Q37

Answer :

$$(2x+1)^2-9x^4$$
$$=(2x+1)^2-(3x^2)^2$$
$$=[(2x+1)-3x^2][(2x+1)+3x^2]$$
$$=(-3x^2+2x+1)(3x^2+2x+1)$$

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

$$(-3x^2+3x-x+1)(3x^2+2x+1)$$
$$=\{3x(-x+1)+1(-x+1)\}(3x^2+2x+1)$$
$$=(-x+1)(3x+1)(3x^2+2x+1)$$
$$=-(x-1)(3x+1)(3x^2+2x+1)$$

Answer :

$$x^4-(2y-3z)^2$$
$$=(x^2)^2-(2y-3z)^2$$
$$=[x^2-(2y-3z)][x^2+(2y-3z)]$$
$$=(x^2-2y+3z)(x^2+2y-3z)$$

Factorizations Ex 7.5 Q38

Factorizations Ex 7.5 Q39

Answer :

$$a^2-b^2+a-b=(a^2-b^2)+(a-b) \qquad [\textit{Grouping the terms}]$$
$$=(a+b)(a-b)+(a-b)$$
$$=(a-b)(a+b+1) \qquad [\textit{Taking out the common factor } (a-b)]$$

Factorizations Ex 7.5 Q40

Answer :

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

********** END **********