



Exercise 2F

Question 16:

$$\begin{aligned} & a^2 + 2ab + b^2 - 9c^2 \\ &= (a + b)^2 - (3c)^2 \\ &= (a + b + 3c)(a + b - 3c) \\ & \text{[Since } a^2 - b^2 = (a+b)(a-b)\text{]} \end{aligned}$$

Question 17:

$$\begin{aligned} & 9 - a^2 + 2ab - b^2 \\ &= 9 - (a^2 - 2ab + b^2) \\ &= 3^2 - (a - b)^2 \\ &= (3 + a - b)(3 - a + b) \\ & \text{[Since } a^2 - b^2 = (a+b)(a-b)\text{]} \end{aligned}$$

Question 18:

$$\begin{aligned} & a^2 - 4ac + 4c^2 - b^2 \\ &= a^2 - 4ac + 4c^2 - b^2 \\ &= a^2 - 2a \cdot 2c + (2c)^2 - b^2 \\ &= (a - 2c)^2 - b^2 \\ &= (a - 2c + b)(a - 2c - b) \\ & \text{[Since } a^2 - b^2 = (a+b)(a-b)\text{]} \end{aligned}$$

Question 19:

$$\begin{aligned} & 9a^2 + 3a - 8b - 64b^2 \\ &= 9a^2 - 64b^2 + 3a - 8b \\ &= (3a)^2 - (8b)^2 + (3a - 8b) \\ &= (3a + 8b)(3a - 8b) + (3a - 8b) \\ & \text{[Since } a^2 - b^2 = (a+b)(a-b)\text{]} \\ &= (3a - 8b)(3a + 8b + 1) \end{aligned}$$

Question 20:

$$\begin{aligned} & x^2 - y^2 + 6y - 9 \\ &= x^2 - (y^2 - 6y + 9) \\ &= x^2 - (y^2 - 2y \cdot 3 + 3^2) \\ &= x^2 - (y - 3)^2 \\ &= [x + (y - 3)][x - (y - 3)] \\ & \text{[Since } a^2 - b^2 = (a+b)(a-b)\text{]} \\ &= (x + y - 3)(x - y + 3) \end{aligned}$$

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