Exercise 7B

Q1

Answer :

We have:

$$x^2 - 36 = (x)^2 - (6)^2$$
$$= (x + 6)(x - 6)$$

$$\therefore x^2 - 36 = (x + 6)(x - 6)$$

Q2

Answer :

We have:

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

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

Q3

Answer :

We have:

$$81 - 49x^2 = (9)^2 - (7x)^2$$
$$= (9 + 7x)(9 - 7x)$$

$$\therefore 81 - 49x^2 = (9 + 7x)(9 - 7x)$$

Q4

Answer :

We have:

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

$$\therefore 4x^2 - 9y^2 = (2x + 3y)(2x - 3y)$$

Q5

Answer :

We have:

$$\begin{aligned} 16a^2 - 225b^2 &= (4a)^2 - (15b)^2 \\ &= (4a + 15b)(4a - 15b) \end{aligned}$$

$$\therefore 16a^2 - 225b^2 = (4a + 15b)(4a - 15b)$$

Q6

Answer :

We have:

$$\begin{aligned} 9a^2b^2 - 25 &= (3ab)^2 - (5)^2 \\ &= (3ab + 5)(3ab - 5) \end{aligned}$$

$$\therefore 9a^2b^2 - 25 = (3ab + 5)(3ab - 5)$$

Q7

Answer :

We have:

$$16a^2 - 144 = (4a)^2 - (12)^2$$
$$= (4a + 12)(4a - 12)$$
$$= 4\left(a + 3\right)\, 4\left(a - 3\right) = 16\left(a + 3\right)\left(a - 3\right)$$

$$\therefore 16a^2 - 144 = 16(a + 3)(a - 3)$$

Q8

Answer :

We have:

$$63a^2 - 112b^2 = 7\left(9a^2 - 16b^2\right)$$
$$= 7\left\{(3a)^2 - (4b)^2\right\}$$
$$= 7(3a + 4b)(3a - 4b)$$

$$\therefore 63a^2 - 112b^2 = 7(3a + 4b)(3a - 4b)$$

Q9

Answer :

We have:

$$20a^2 - 45b^2 = 5\left(4a^2 - 9b^2\right)$$
$$= 5\left\{(2a)^2 - (3b)^2\right\}$$
$$= 5(2a + 3b)(2a - 3b)$$

$$\therefore 20a^2 - 45b^2 = 5(2a + 3b)(2a - 3b)$$

Q10

Answer :

We have:

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

$$\therefore 12x^2 - 27 = 3(2x + 3)(2x - 3)$$

Q11

Answer :

We have:

$$\begin{aligned} x^3 - 64x &= x\left(x^2 - 64\right) \\ &= x\left\{(x)^2 - (8)^2\right\} \\ &= x(x + 8)(x - 8) \end{aligned}$$

$$\therefore x^3 - 64x = x(x + 8)(x - 8)$$

Q12

Answer :

We have:

$$\begin{aligned} 16x^5 - 144x^3 &= 16x^3\left(x^2 - 9\right) \\ &= 16x^3\left\{(x)^2 - (3)^2\right\} \\ &= 16x^3(x + 3)(x - 3) \end{aligned}$$

$$\therefore 16x^5 - 144x^3 = 16x^3(x+3)(x-3)$$

Q13

Answer :

We have:

$$\begin{aligned} 3x^5 - 48x^3 &= 3x^3\left(x^2 - 16\right) \\ &= 3x^3\left\{(x)^2 - (4)^2\right\} \\ &= 3x^3(x+4)(x-4) \end{aligned}$$

$$\therefore 3x^5 - 48x^3 = 3x^3(x+4)(x-4)$$

Q14

Answer :

We have:

$$\begin{aligned} 16p^3 - 4p &= 4p\left(4p^2 - 1\right) \\ &= 4p\left\{(2p)^2 - (1)^2\right\} \\ &= 4p(2p+1)(2p-1) \end{aligned}$$

$$\therefore 16p^3 - 4p = 4p(2p+1)(2p-1)$$

Q15

Answer :

We have:

$$\begin{aligned} 63a^2b^2 - 7 &= 7\left(9a^2b^2 - 1\right) \\ &= 7\left\{(3ab)^2 - (1)^2\right\} \\ &= 7(3ab+1)(3ab-1) \end{aligned}$$

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