



Exercise 2J

Question 8:

$$\begin{aligned} & 7a^3 + 56b^3 \\ &= 7(a^3 + 8b^3) \\ &= 7[(a)^3 + (2b)^3] \\ &= 7(a + 2b)[a^2 - a(2b) + (2b)^2] \\ &\text{Since } a^3 + b^3 = (a + b)(a^2 - ab + b^2) \\ &= 7(a + 2b)(a^2 - 2ab + 4b^2). \end{aligned}$$

Question 9:

$$\begin{aligned} & x^5 + x^2 \\ &= x^2(x^3 + 1) \\ &= x^2(x + 1)[(x)^2 - x(1) + (1)^2] \\ &\text{Since } a^3 + b^3 = (a + b)(a^2 - ab + b^2) \\ &= x^2(x + 1)(x^2 - x + 1). \end{aligned}$$

Question 10:

$$\begin{aligned} & a^3 + 0.008 \\ &= (a)^3 + (0.2)^3 \\ &= (a + 0.2)[(a)^2 - a(0.2) + (0.2)^2] \\ &\text{Since } a^3 + b^3 = (a + b)(a^2 - ab + b^2) \\ &= (a + 0.2)(a^2 - 0.2a + 0.04). \end{aligned}$$

Question 11:

$$\begin{aligned} & x^6 + y^6 \\ &= (x^2)^3 + (y^2)^3 \\ &= (x^2 + y^2)[(x^2)^2 - x^2(y^2) + (y^2)^2] \\ &\text{Since } a^3 + b^3 = (a + b)(a^2 - ab + b^2) \\ &= (x^2 + y^2)(x^4 - x^2y^2 + y^4). \end{aligned}$$

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