Exercise 2J

Question 12:

$2a^3 + 16b^3 - 5a - 10b$

$= 2(a^3 + 8b^3) - 5(a + 2b)$

$= 2[(a)^3 + (2b)^3] - 5(a + 2b)$

$= 2(a + 2b)[(a)^2 - a(2b) + (2b)^2] - 5(a + 2b)$

Since $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$

$= (a + 2b)[2(a^2 - 2ab + 4b^2) - 5]$

Question 13:

$x^3 - 512$

$= (x)^3 - (8)^3$

$= (x - 8)[(x)^2 + x(8) + (8)^2]$

Since $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

$= (x - 8)(x^2 + 8x + 64)$.

Question 14:

$64x^3 - 343$

$= (4x)^3 - (7)^3$

$= (4x - 7)[(4x)^2 + 4x(7) + (7)^2]$

Since $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

$= (4x - 7)(16x^2 + 28x + 49)$.

Question 15:

$1 - 27x^3$

$= (1)^3 - (3x)^3$

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

Since $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

$= (1 - 3x)(1 + 3x + 9x^2)$.

Question 16:

$1 - 27x^3$

$= (1)^3 - (3x)^3$

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

Since $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$

$= (1 - 3x)(1 + 3x + 9x^2)$.

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