

Exercise 2K

(3a)

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Question 1:
125a^3 + b^3 + 64c^3 - 60abc
= (5a)^3 + (b)^3 + (4c)^3 - 3(5a)(b)(4c)
= (5a + b + 4c)[(5a)^2 + b^2 + (4c)^2 - (5a)(b) - (b)(4c) - (5a)(4c)]
[\because a^3 + b^3 + c^3 - 3abc = (a + b + c) (a^2 + b^2 + c^2 - ab - bc - ca)]
= (5a + b + 4c) (25a^2 + b^2 + 16c^2 - 5ab - 4bc - 20ac).
Question 2:
a^3 + 8b^3 + 64c^3 - 24abc
= (a)^3 + (2b)^3 + (4c)^3 - 3a 2b 4c
= (a + 2b + 4c) [a^2 + 4b^2 + 16c^2 - 2ab - 8bc - 4ca).
Ouestion 3:
1 + b^3 + 8c^3 - 6bc
= 1 + (b)^3 + (2c)^3 - 3 (b) (2c)
= (1 + b + 2c) [1 + b^2 + (2c)^2 - b - b 2c - 2c]
= (1 + b + 2c) (1 + b^2 + 4c^2 - b - 2bc - 2c).
Question 4:
216 + 27b^3 + 8c^3 - 108bc
= (6)^3 + (3b)^3 + (2c)^2 - 363b2c
= (6 + 3b + 2c)[(6)^2 + (3b)^2 + (2c)^2 - 63b - 3b 2c - 2c6]
= (6 + 3b + 2c) (36 + 9b^2 + 4c^2 - 18b - 6bc - 12c).
Question 5:
27a^3 - b^3 + 8c^3 + 18abc
= (3a)^3 + (-b)^3 + (2c)^3 + 3(3a) (-b) (2c)
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********* END ********

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

 $= (3a - b + 2c) (9a^2 + b^2 + 4c^2 + 3ab + 2bc - 6ca).$