

Q1) If $(x-2)$ and $(x+3)$ are factors of $x^3 + a \cdot x^2 + bx - 30$ find a and b .

Q2) If $(x-2)$ is a zero of $3-4x^2 + kx-8$, find k .

Q3) If 5 is a zero of $x^3 + k \cdot x^2 + 2x + 8$ find k .

Q4) Factorize the following by splitting the middle term:

a) $3x^2 + 19x + 30$

b) $2\sqrt{2} \cdot x^2 + 9x + 5\sqrt{2}$

c) $4x^2 - 13x + 10$

Q5) Factorize the following by Factor theorem:

a) $x^3 + 9x^2 + 23x + 15$

b) $x^3 + 6x^2 + 11x + 6$

Q6) Factorize the following by using a suitable identity:

a) $4x^2 + 12xy + 9y^2$

b) $27x^3 - 135x^2 + 225x - 125$

c) $x^5 - x$

d) $x^6 - y^6$