Exercise 2.3

Find the zeroes of the following polynomials by factorization method and verify the relations between the zeroes and the coefficients of the polynomials.

Question 2:

$3x^2 + 4x - 4$

Answer 2:

Let $f(x) = 3x^2 + 4x - 4$

$= 3x^2 + 6x - 2x - 4$

$= 3x(x + 2) - 2(x + 2)$

$= (x + 2)(3x - 2)$

So, the value of $3x^2 + 4x - 4$ is zero when $x + 2 = 0$ *or* $3x - 2 = 0$, *i.e.*, when $x = -2$ or $x = \frac{2}{3}$ so, the zeroes of $3x^2 + 4x - 4$ *are* -2 and $\frac{2}{3}$.

$\therefore$ Sum of zeroes $= -2 + \frac{2}{3} = -\frac{4}{3}$

$$= -\left(\frac{coefficinet\ of x}{coefficinet\ of\ x^2}\right)$$

And product of zeroes $= (-2)\left(\frac{2}{3}\right) = -\frac{4}{3}$

$$= \left(\frac{Constant\ term}{coefficinet\ of\ x^2}\right)$$

Hence, the relations between the zeroes and the coefficients of the polynomial is verified.