

$$\begin{aligned}
 1. \quad \text{let } p(x) &= 2x^3 + x^2 - 5x + 2 \\
 p\left(\frac{1}{2}\right) &= 2 \times \left(\frac{1}{2}\right)^3 + \left(\frac{1}{2}\right)^2 - 5 \times \frac{1}{2} + 2 \\
 &= 2 \times \frac{1}{8} + \frac{1}{4} - \frac{5}{2} + \frac{2}{1} \\
 &= \frac{1+1-10+8}{4} \\
 &= \frac{0}{4} \\
 &= 0
 \end{aligned}$$

$$\therefore x = 0$$

$\therefore \frac{1}{2}$  is a zero of  $p(x)$

$$\begin{aligned}
 p(1) &= 2 \times 1^3 + 1^2 - 5 \times 1 + 2 \\
 &= 2 + 1 - 5 + 2 \\
 &= 0
 \end{aligned}$$

$$\therefore x = 0$$

$\therefore 1$  is a zero of  $p(x)$

$$\begin{aligned}
 p(-2) &= 2 \times (-2)^3 + (-2)^2 - 5(-2) + 2 \\
 &= -16 + 4 + 10 + 2 \\
 &= 0
 \end{aligned}$$

$$\therefore x = 0$$

$\therefore (-2)$  is a zero of  $p(x)$

$$\begin{aligned}
 \text{Sum of zeros} &= \frac{1}{2} + \frac{1}{1} - \frac{2}{1} \\
 &= \frac{1+2-4}{2} \\
 &= -\frac{1}{2} \\
 &= -\frac{b}{a}
 \end{aligned}$$

$$[\because b=1, a=2]$$

$$\begin{aligned}
 \text{Product of zeros} &= \frac{1}{2} \times 1 \times (-2) \\
 &= -\frac{2}{2} \\
 &= -\frac{d}{a} \quad [\because d=2, a=2]
 \end{aligned}$$

$$\begin{aligned}
 \text{Sum of product taking two at a time} &= \frac{1}{2} \times 1 + 1 \times (-2) + (-2) \times \frac{1}{2} \\
 &= \frac{1}{2} - \frac{2}{1} - \frac{2}{2} \\
 &= \frac{1-4-2}{2} \\
 &= -\frac{5}{2} \\
 &= \frac{c}{a} \quad [\because c=-5, a=2]
 \end{aligned}$$