

$$\text{Sum} = -\frac{b}{a} \quad \text{Product} = \frac{c}{a}$$

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Pre Calculus

Sum and Product of the Roots

Find the sum and product of the roots for the following quadratic equations:

1. $x^2 + 2x + 8 = 0$

$$\text{Sum} = -\frac{2}{1} = -2$$

$$\text{Product} = \frac{8}{1} = 8$$

2. $x^2 - 5x + 1 = 0$

$$\text{Sum} = \frac{5}{1} = 5$$

$$\text{Product} = \frac{1}{1} = 1$$

3. $2x^2 - 6x + 8 = 0$

$$\text{Sum} = \frac{6}{2} = 3$$

$$\text{Product} = \frac{8}{2} = 4$$

4. $-3x^2 - 6x - 9 = 0$

$$\text{Sum} = \frac{6}{-3} = -2$$

$$\text{Product} = \frac{-9}{-3} = 3$$

5. $x^2 - 7x = 5$

$$\begin{array}{c} -5 - 5 \\ x^2 - 7x - 5 = 0 \end{array}$$

$$\text{Sum} = \frac{7}{1} = 7$$

$$\text{Product} = \frac{-5}{1} = -5$$

6. $2x^2 + 10x = 12$

$$\begin{array}{c} -12 - 12 \\ 2x^2 + 10x - 12 = 0 \end{array}$$

$$2x^2 + 10x - 12 = 0$$

$$\text{Sum} = \frac{-10}{2} = -5$$

$$\text{Product} = \frac{-12}{2} = -6$$

7. $2x^2 + 3x = 8$

$$\begin{array}{c} -8 - 8 \\ 2x^2 + 3x - 8 = 0 \end{array} \quad \text{Sum} = \frac{-3}{2}$$

$$2x^2 + 3x - 8 = 0 \quad \text{Product} = \frac{-8}{2} = -4$$

8. $5x^2 + 3x = 4$

$$\begin{array}{c} -4 - 4 \\ 5x^2 + 3x - 4 = 0 \end{array} \quad \text{Sum} = \frac{-3}{5}$$

$$5x^2 + 3x - 4 = 0 \quad \text{Product} = \frac{-4}{5}$$

9. $2x^2 + 3x = 5x - 7$

$$\begin{array}{c} -5x + 7 - 5x + 7 \\ 2x^2 - 2x + 7 = 0 \end{array}$$

$$2x^2 - 2x + 7 = 0$$

$$\text{Sum} = \frac{2}{2} = 1$$

$$\text{Product} = \frac{7}{2}$$

10. $x(2x - 5) = 3$

$$\begin{array}{c} 2x^2 - 5x = 3 \\ -3 - 3 \\ 2x^2 - 5x - 3 = 0 \end{array} \quad \text{Sum} = \frac{5}{2}$$

$$2x^2 - 5x - 3 = 0$$

$$\text{Product} = \frac{-3}{2}$$