

Synthetic Division Exercises

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1) Find the quotient if the polynomial $2x^3 - 3x^2 - 11x + 6$ is divided by $x+2$
(Use synthetic division)

2) Use synthetic division to divide $x^3 + 4x^2 - 3x + 4$ by $x-1$

3) Use synthetic division to divide $x^3 + 2x^2 - 4x + 1$ by $x-3$

SYNTHETIC DIVISION EXERCISES

MEMORANDUM

1) Find the quotient if the polynomial $2x^3 - 3x^2 - 11x + 6$ is divided by $x+2$

Solution:

$$x+2=0$$

$$x=-2$$

$$\begin{array}{r|rrrr} -2 & 2 & -3 & -11 & 6 \\ & \downarrow & -4 & 14 & -6 \\ \hline & 2 & -7 & 3 & 0 \end{array}$$

$$\therefore \text{Remainder} = \frac{0}{x+2}$$

$$\text{Quotient} = 2x^2 - 7x + 3$$

2) Use synthetic division to divide $x^3 + 4x^2 - 3x + 4$ by $x-1$

Solution: $x-1=0$

$$x=1$$

$$\begin{array}{r|rrrr} 1 & 1 & 4 & -3 & 4 \\ & \downarrow & 1 & 5 & 2 \\ \hline & 1 & 5 & 2 & 6 \end{array}$$

$$\therefore \text{Remainder} = \frac{6}{x-1}$$

$$\text{Quotient} = x^2 + 5x + 2$$