



Air maths tuition

Interact, engage and perform

Algebraic long division - Handling missing terms

Divide $x^3 + 5x - 6$ by $x - 1$

$$\begin{array}{r} x^2 + x + 6 \\ x-1 \overline{) x^3 + 0x^2 + 5x - 6} \\ \underline{-x^3 - x^2} \\ x^2 + 5x \\ \underline{-x^2 - x} \\ 6x - 6 \\ \underline{-6x - 6} \\ 0 \end{array}$$

Divide $x^4 - 3x^2$ by $x + 2$
Is $x + 2$ a factor of $x^4 - 3x^2$?

$$\begin{array}{r} x^3 - 2x^2 + x - 2 \\ x+2 \overline{) x^4 + 0x^3 - 3x^2 + 0x + 0} \\ \underline{-x^4 + 2x^3} \\ -2x^3 - 3x^2 \\ \underline{-2x^3 - 4x^2} \\ x^2 + 0x \\ \underline{-x^2 + 2x} \\ -2x + 0 \\ \underline{-2x - 4} \\ 4 \end{array}$$

Note remainder = 4
 $\therefore x + 2$ is not a factor

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