

Adding and Subtracting Polynomials

You want to put a mat and a frame on a picture that is 8 inches by 10 inches. If m is the width of the mat and f is the width of the frame, you can add polynomials to find an expression for the amount of framing material you need.

You add polynomials by combining like terms. One way to add polynomials is to align like terms in columns. If one of the polynomials is missing a term, you can either leave a space in that term's column, or write the term with a coefficient of 0.



Example 1: Find the sum.

A. $(-8x^3 + 4x^2 + x + 1) + (3x^3 - 2x^2 + 7)$

$$\begin{array}{r} -8x^3 + 4x^2 + x + 1 \\ + 3x^3 - 2x^2 \quad + 7 \\ \hline -5x^3 + 2x^2 + x + 8 \end{array}$$

Arrange like terms in columns.
Add like terms.

B. $(2x^4 + 6x^3 - 5x^2 + x - 7) + (x^3 - 3x^2 + 2x + 1)$

$$\begin{array}{r} 2x^4 + 6x^3 - 5x^2 + x - 7 \\ + \quad \quad x^3 - 3x^2 + 2x + 1 \\ \hline 2x^4 + 7x^3 - 8x^2 + 3x - 6 \end{array}$$

Arrange like terms in columns.
Add like terms.