

For 1-8, perform the indicated operation:

1.) Add $x^3 + 5x - 4$ and $3x^3 - 2x - 6$.

$$4x^3 + 3x - 10$$

2.) Find the sum of $2x^4 + 5x^4 - 3x + 1$, and $-x^4 + 7$.

$$6x^4 - 3x + 8$$

3.) $(2x^2 - 6x + 3) + (5x^2 + 8x - 2)$ $2x^2 - 6x + 3 + 5x^2 + 8x - 2$

$$7x^2 + 2x + 1$$

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

$$-9x^4 - 1x + 6$$

5.) Subtract $5x^3 + 3x^2 - 8x - 9$ from $4x^3 - 5x^2 + 7$

$$(4x^3 - 5x^2 + 7) - (5x^3 + 3x^2 - 8x - 9)$$

$$4x^3 - 5x^2 + 7 - 5x^3 - 3x^2 + 8x + 9$$

$$-x^3 - 8x^2 + 8x + 16$$

6.) Subtract $3x^2 + 5x - 4$ from $x^2 + 2x + 3$.

$$-2x^2 - 3x + 7$$

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

8.) $(4n + 5)(2n - 3)$

$$8n^2 - 12n + 10n - 15$$

$$8n^2 - 2n - 15$$

Operations on Polynomial Expressions with Fractions

$$1. \left(\frac{2}{3}x - \frac{1}{2} \right) + \left(\frac{1}{4}x + \frac{5}{6} \right)$$

$$\frac{11}{12}x + \frac{1}{3}$$

$$2) \left(\frac{1}{9}x^2 + \frac{2}{3}x - 4 \right) - \left(\frac{1}{6}x^2 - \frac{1}{2}x + 5 \right)$$

$$\frac{1}{9}x^2 + \frac{2}{3}x - 4 - \frac{1}{6}x^2 + \frac{1}{2}x - 5$$

$$-\frac{1}{18}x^2 + \frac{7}{6}x - 9$$

$$3) \left(\frac{1}{3}m - \frac{1}{2} \right) \left(\frac{1}{3}m + \frac{1}{2} \right)$$

$$\begin{array}{r} \frac{1}{3}m \\ -\frac{1}{2} \end{array} \begin{array}{|c|c|} \hline \frac{1}{9}m^2 & \frac{1}{6}m \\ \hline -\frac{1}{6}m & -\frac{1}{4} \\ \hline \end{array}$$

$$\frac{1}{9}m^2 - \frac{1}{4}$$

$$4) \left(\frac{5}{3}y - \frac{2}{5} \right) \left(\frac{1}{3}y + \frac{3}{5} \right)$$

$$\begin{array}{r} \frac{5}{3}y \\ -\frac{2}{5} \end{array} \begin{array}{|c|c|} \hline \frac{5}{9}y^2 & \frac{15}{15}y \\ \hline -\frac{2}{15}y & -\frac{6}{25} \\ \hline \end{array}$$

$$\frac{5}{9}y^2 + \frac{13}{15}y - \frac{6}{25}$$

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$$5) \left(\frac{3}{5}m + \frac{1}{4} \right) + \left(\frac{1}{2}m - \frac{7}{10} \right)$$

$$6) \left(\frac{1}{3}n^2 - 4n + \frac{3}{4} \right) - \left(\frac{5}{8}n^2 + 9n - \frac{1}{6} \right)$$

$$7) \left(\frac{3}{5}x + \frac{4}{7}\right)\left(\frac{1}{5}x - \frac{2}{7}\right)$$

$$8) \left(\frac{7}{9}m^2 - \frac{2}{5}n\right)\left(\frac{7}{9}m^2 + \frac{2}{5}n\right)$$

$$9) \left(\frac{2}{3}n - \frac{1}{4}\right)\left(\frac{1}{3}n + \frac{5}{4}\right)$$

$$10) \left(\frac{8}{3}w^2 + \frac{7}{6}w\right) - \left(\frac{11}{4}w^2 - \frac{5}{3}w + \frac{5}{9}\right)$$