MATH 123 **Polynomial Division and Simplifying Rational Expressions**

Perform the indicated operation.

$\dfrac{3x^2-7x+4}{x+2}$

$\dfrac{4x^3-2x^2+3x-4}{x^2+2}$

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

$\dfrac{4x^3-2x^2+2x+15}{2x+3}$

$\dfrac{4x^2-8x+11}{2x-3}$

$\dfrac{y^3-8}{y-2}$

$\dfrac{x^3+2x^2+3x+6}{x^2+3}$

$\dfrac{x^2+x+1}{x-1}$

$\dfrac{x^4+x^3+x^2+x+1}{x-1}$

$\dfrac{3x^2+x^3+5+4x}{x+2}$

$\dfrac{2x^4-2x^2-10}{x^2-3}$

$\dfrac{16x^4-2}{2x^2+1}$

Simplify the expression completely. Solve any equations for x.

$\dfrac{4x-24}{x^2-6x}$

$\dfrac{x^2-4}{x^2-2x-8}$

$\dfrac{10+3x-x^2}{x^2-4x-5}$

$\dfrac{x+3}{x^2-2x}+\dfrac{6}{x^2-4}$

$\dfrac{5}{9x^2}+\dfrac{1}{6x}$

$\dfrac{2x}{2x-3}-\dfrac{1}{x+1}$

$\dfrac{2x-3}{3x^2-x-2}+\dfrac{5}{3x+2}-\dfrac{1}{x-1}$

$\dfrac{3p^2+11p-4}{24p^3-8p^2}\div\dfrac{9p+36}{24-36p^3}$

$\dfrac{1}{m^2-m-2}-\dfrac{1}{m^2+3m+2}$

$\dfrac{3x^2+x-2}{3x^2-8x+4}$

$\dfrac{x^2-4x-32}{x^2-8x-48}\cdot\dfrac{3x^2+17x+10}{3x^2-22x-16}$

$\dfrac{y^2-y-56}{y^2+8y+7}\div\dfrac{y^2-13y+40}{y^2-4y-5}$

$\dfrac{6n^2+13n+6}{4n^2-9}\div\dfrac{6n^2+n-2}{4n^2-1}$

$\dfrac{x^2-3x}{5x^2}\cdot\dfrac{10x}{x^2-4x+3}$

$\dfrac{3x-9}{x^2-2x}\div\dfrac{x^2-x-6}{x^2-4}$

$\dfrac{5}{x-2}-\dfrac{1}{x+3}$

$\dfrac{2x}{x+3}+\dfrac{6}{x+3}$

$\dfrac{3}{x}-\dfrac{2}{x^2}$

$\dfrac{3x^2+9x}{x^2-9}\cdot\dfrac{2x^2-9x+9}{2x^3-3x^2}$

$\dfrac{4x^2-25}{2x^2-5x}\div(6x+15)$

$\dfrac{4}{x-2}-\dfrac{7}{x+5}=0$

$\dfrac{5}{3x}+\dfrac{1}{x^2}=\dfrac{5}{2x}$

$\dfrac{10}{x-3}-2=\dfrac{5}{x+3}$