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(b) $f(x) = \frac{3x+4}{x^2-49}$; $g(x) = \frac{2x-3}{x^2-49}$

Add: $(f+g)(x) = f(x) + g(x)$

$= \frac{3x+4}{x^2-49} + \frac{2x-3}{x^2-49}$

$= \frac{(3x+4)+(2x-3)}{x^2-49}$ ← combine like terms

$= \frac{5x+1}{x^2-49}$

$x^2 - 49 = 0$

$\sqrt{x^2} = \sqrt{49}$

Domain: $(-\infty,-7) \cup (-7,7) \cup (7,\infty)$

$x \neq \pm 7$

$x \neq -7$ or $x \neq 7$

Subtract: $(f-g)(x) = f(x) - g(x)$

$= \frac{3x+4}{x^2-49} - \frac{2x-3}{x^2-49}$

$= \frac{3x+4-(2x-3)}{x^2-49}$

Same as addition

$= \frac{3x+4-2x+3}{x^2-49}$

$= \frac{x+7}{x^2-49} = \frac{x+7}{(x+7)(x-7)}$

$= \frac{1}{x-7}$