

For the given functions f and g , find the following and state the domain of each result.

$$f(x) = \frac{5x+5}{8x-7}; g(x) = \frac{3x}{8x-7}$$

(a) $(f+g)(x) = \frac{8x+5}{8x-7}$ ✓

What is the domain of $f+g$?

- $\left\{x \mid x < \frac{7}{8} \text{ and } x > \frac{7}{8}\right\}$
- $\left\{x \mid x \neq \frac{7}{8}\right\}$
- $\left\{x \mid x \neq -1, x \neq \frac{7}{8}, x \neq 0\right\}$
- $\{x \mid x \text{ is any real number}\}$

Invert & Multiply

(b) $\left(\frac{f}{g}\right)(x) = \frac{40x^2 + 5x - 35}{24x^2 - 21x}$

$$\left(\frac{f}{g}\right)(x) = \frac{\frac{5x+5}{8x-7}}{\frac{3x}{8x-7}} = \frac{5x+5}{8x-7} \cdot \frac{8x-7}{3x}$$

$$= \frac{(5x+5)\cancel{(8x-7)}}{\cancel{(8x-7)}(3x)} = \frac{5x+5}{3x}$$

Your way: you multiplied when you could've & should've cancelled. Let's see if I get what you did:

$$\frac{(5x+5)(8x-7)}{(8x-7)(3x)} = \frac{40x^2 + 40x - 35x - 35}{24x^2 - 21x} = \frac{40x^2 + 5x - 35}{24x^2 - 21x}$$

Yeah. You just missed the cancellation.