Answer on question #77401

Confirm that f and g are inverses by showing that $f\big(g(x)\big) = x$, and $g\big(f(x)\big) = x$, where $f(x) = \frac{x-8}{x+7}, g(x) = \frac{-7x-8}{x-1}$.

$$f\big(g(x)\big) = \frac{\frac{-7x-8}{x-1} - 8}{\frac{-7x-8}{x-1} + 7} = \frac{-7x-8-8(x-1)}{-7x-8+7(x-1)} = \frac{-15x}{-15} = x$$

$$g\big(f(x)\big) = \frac{(-7)\frac{x-8}{x+7} - 8}{\frac{x-8}{x+7} - 1} = \frac{-7x+56-8x-56}{x-8-x-7} = \frac{-15x}{-15} = x$$

Here are the domains of above-mentioned functions $D(f): x \neq -7; D(g): x \neq 1$