

$$\boxed{13} \quad (\text{a}) \quad (f + g)(x) = f(x) + g(x) = \frac{1}{x+1} + \frac{3}{x+1} = \frac{4}{x+1}; \quad D = \{x \mid x \neq -1\}$$

$$(\text{b}) \quad (f - g)(x) = f(x) - g(x) = \frac{1}{x+1} - \frac{3}{x+1} = -\frac{2}{x+1}; \quad D = \{x \mid x \neq -1\}$$

$$(\text{c}) \quad (fg)(x) = f(x)g(x) = \left(\frac{1}{x+1}\right)\left(\frac{3}{x+1}\right) = \frac{3}{(x+1)^2}; \quad D = \{x \mid x \neq -1\}$$

$$(\text{d}) \quad (f/g)(x) = f(x)/g(x) = \frac{1/(x+1)}{3/(x+1)} = \frac{1}{3}; \quad D = \{x \mid x \neq -1\}$$