

(1) Find the domain of the following rational expressions.

(a) $\frac{2x + 1}{5 - 4x}$

(b) $\frac{y^2 + 1}{y^3 - 3y^2 - 10y}$

(2) Perform addition/subtraction and simplify.

(a) $2 - \frac{x}{x + 3}$

(b) $\frac{1}{x + 5} - \frac{x}{x + 3}$

(c) $u + 1 + \frac{u}{u + 1}$

(d) $\frac{1}{x} - \frac{2}{x^2} + \frac{3}{x^3}$

$$(e) \frac{3}{t-3} + \frac{5}{t^2-9}$$

(3) Simplify the compound fractional expressions.

$$(a) \frac{x + \frac{1}{x+2}}{x+3}$$

$$(b) \frac{\frac{x-y}{y-x}}{x+y}$$

$$(c) \frac{1 + \frac{1}{c-1}}{1 - \frac{1}{c-1}}$$

$$(d) 1 + \frac{1}{1 + \frac{1}{1+x}}$$