

Worksheet ---- Rational Expressions & Equations

1. Determine the domain of: $f(x) = \frac{x-2}{x^2-7x+6}$

2. Perform the indicated operations.

(a) $\frac{x^3+64}{x^2-9} \div \frac{x^2+3x-4}{x^2+2x-3}$

(b) $\frac{a^3-b^3}{3a^2+9ab+6b^2} \cdot \frac{a^2+2ab+b^2}{a^2-b^2}$

(c) $\frac{3}{y-4} - \frac{y}{y+3} + \frac{y^2+1}{y^2-y-12}$

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

(e) $\frac{2a+1}{a-b} + \frac{5a^2-5ab}{a^2-2ab+b^2}$

3. Simplify.

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

$$(b) \frac{\frac{5}{x+2} - \frac{3}{x^2 - 7x + 12}}{\frac{4}{x-4} + \frac{2}{x^2 - x - 6}}$$

4. Solve.

$$(a) \frac{t+9}{t^2 - 5t - 14} + \frac{2}{t-7} = \frac{2}{t+2}$$

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

5. Let $f(x) = 2x - \frac{6}{x}$.

(a) find $f(3)$

(b) find all values of a for which $f(a) = 1$