

Section A.2

Section Objectives:

- Know what polynomials and rational functions are.
- Add, subtract and multiply polynomials.
- Factor polynomials (quadratic, difference of squares)
- Add, subtract, multiply and divide rational expressions.
- Solve equations involving polynomials and rational expressions.
- Simplify rational expressions using rationalization.

Practice Problems

1. Let

$$f(x) = 2x^2 + 3x \quad g(x) = 2x^2 - 7x + 6 \quad h(x) = 4x + 1$$

(a) Find and simplify $f(x) - g(x)$.

(b) Find and simplify $f(x) \cdot h(x)$.

(c) Find and simplify $g(x) \cdot h(x)$.

(d) Factor $f(x)$ completely.

(e) Factor $g(x)$ completely.

(f) Find and simplify $\frac{f(x)}{h(x)} + \frac{h(x)}{f(x)}$.

(g) Find and simplify $\frac{\frac{f(x)}{g(x)}}{h(x)}$.

(h) Find and simplify $\frac{f(x)}{\frac{g(x)}{h(x)}}$.

2. Simplify $x^2 - 4y^2$.

3. Solve for s : $s^4 - 9 = 0$.

4. Simplify the following expression by rationalizing the numerator. Let $f(x) = \sqrt{x}$

$$\frac{f(x) - f(4)}{x - 4}.$$

More Practice from Textbook A.2: You should do as many problems from each set (1-14, 15-26, 27-38, 39-46, 47-58, 59-66 and 67-70), as needed until you are comfortable with these techniques.