Algebra I EOC Practice #13

SPI 3102.3.4 Operate with, evaluate, and simplify rational expressions including determining restrictions on the domain of the variables.

1. Simplify $\dfrac{x^2 - 9x + 18}{x^2 - 6x + 9}$ for all values of x for which the expression is defined.

   A. $\dfrac{x-3}{x-6}$

   B. $\dfrac{x-6}{x-3}$

   C. $\dfrac{x-1}{x+9}$

   D. $\dfrac{x+9}{x-1}$

4. Simplify $\dfrac{x^2 + 5x + 6}{x^2 + 2x - 15} \cdot \dfrac{x^2 + 13x + 40}{x^2 - 6x - 16}$ for all values of x for which the expression is defined.

   A. 1

   B. −1

   C. $\dfrac{x^2 + 11x + 24}{x^2 - 11x + 24}$

   D. $\dfrac{x^2 - 11x + 24}{x^2 + 11x + 24}$

2. Simplify $\dfrac{x-4}{x^2 - 16}$ for all values of x for which the expression is defined.

   A. $\dfrac{1}{x-4}$

   B. $\dfrac{1}{4}$

   C. $\dfrac{4}{x+4}$

   D. $\dfrac{1}{x+4}$

5. Simplify the expression below and state all restrictions on the domain.

   $$\dfrac{x^2 - x - 6}{x^2 + x - 12}$$

   A. $\dfrac{x+4}{x+2}, x \neq -2, x \neq -4$

   B. $x - 3, x \neq 3$

   C. $\dfrac{x+2}{x+4}, x \neq -4, x \neq 3$

   D. $\dfrac{x-2}{x-4}, x \neq 0$

3. Simplify $\dfrac{5x + 10}{x^2 + 7x + 10} \cdot x^2 + 8x + 15$

   A. 5(x+3)

   B. $\dfrac{5}{x+3}$

   C. $\dfrac{x+3}{5}$

   D. 5

6. Simplify $\dfrac{x^2 - 9}{2x} \div \dfrac{x+3}{x}$

   A. $\dfrac{x-3}{2}$

   B. $\dfrac{2}{x-3}$

   C. 2

   D. x − 3