Algebra 2 CC Name _____
Rational Expressions 2019

Simplify the rational expression.

1.) $\frac{2x^2+2x-4}{3x^2-x-2}$ $= \frac{2(x^2+x-2)}{(3x+2)(x-1)}$ $= \frac{2(x+2)(x-1)}{(3x+2)(x-1)}$ $= \boxed{\frac{2(x+2)}{3x+2}}$

$2x$, $-3x$

2.) $\frac{x+5}{5+x}$ $= \frac{x+5}{x+5}$ $= \boxed{1}$

3.) $\frac{2x-8}{4-x}$ $= \frac{2(x-4)}{4-x}$ $= \frac{2(x-4)}{-1(x-4)}$ $= \boxed{-2}$

4.) $\frac{x^2-4}{4-2x}$ $= \frac{(x-2)(x+2)}{2(2-x)}$ $= \frac{(x-2)(x+2)}{-2(x-2)}$ $= \boxed{\frac{x+2}{-2}}$ $= \frac{-(x+2)}{2}$

5.) Written in simplest form, $\frac{c^2-d^2}{d^2+cd-2c^2}$ where $c \neq d$, is equivalent to

(a) $\frac{c+d}{d+2c}$ (b) $\frac{c-d}{d+2c}$ (c) $\frac{-c-d}{d+2c}$ (d) $\frac{-c+d}{d+2c}$

$$\frac{(c+d)(c-d)}{(d+2c)(d-c)} = \frac{(c+d)(c-d)}{-(d+2c)(c-d)} = \frac{c+d}{-(d+2c)}$$

$2cd$

cd

$$\frac{-(c+d)}{d+2c}$$

6.) Simplify the expression: $\frac{x^3-3x^2+6x-18}{x^2-3x}$

$$x^2(x-3)+6(x-3)$$

$$= \frac{(x-3)(x^2+6)}{x(x-3)}$$

$$= \frac{x^2+6}{x}$$

7.) Simplify the expression: $\frac{m^5+m^3-6m}{m^3-2m}$

$$= \frac{m(m^4+m^2-6)}{m(m^2-2)} = \frac{m(m^2+3)(m^2-2)}{m(m^2-2)}$$

$$= m^2+3$$