

1. Explain the error in the following attempt to simplify:

$$\frac{x^2 - 4x - 21}{x^2 - 8x + 7} \longrightarrow \frac{x^2 - 4x - 21}{x^2 - 8x + 7} \longrightarrow \frac{-4x - 21}{-8x + 7}$$

Simplify the above fraction CORRECTLY:

2. Perform the indicated operation and simplify:

a. $\frac{3x}{3x-6}$

b. $\frac{3y^2}{4} \cdot \frac{20x}{15y}$

c. $\frac{2x-3}{(x+3)^2} \cdot \frac{x^2+4x+3}{4x^2-9}$

d. $\frac{2x^2+4x}{x^2-4} \div \frac{x^2-3x+2}{3x-6}$

e. $\frac{4x}{x^2-9} + \frac{2}{x+3} - \frac{2}{x-3}$

f. $\frac{3x-5}{x^2-25} - \frac{2}{x+5}$

3. Solve. (Remember to check for extraneous solutions.)

a. $\frac{x-5}{-3} = \frac{4}{x+2}$

b. $\frac{2}{a^2-1} = \frac{2}{a+1}$

c. $\frac{3}{2} + \frac{1}{x} = 1 + \frac{4}{x}$

d. $\frac{2x}{x-2} + \frac{1}{x+2} = \frac{10}{x^2-4}$

e. $1 - \frac{8}{x-5} = \frac{3}{x}$

f. If $b \neq 0$ and $\frac{a}{3} = \frac{b}{5}$ what is the value of the fraction $\frac{a}{b}$?

4. The braking distance of a car can be modeled by $d = s + \frac{s^2}{20}$ where d is the distance (in feet) that a car travels before coming to a stop, and s is the speed at which the car is traveling (in miles per hour). What speed were you going if it took you 240 feet to stop?