

Key

SPIRAL REVIEW #4.2

Work harder than you think you did yesterday.

1. Express in simplest form: $\frac{3a+1}{a^2-1} - \frac{1}{a+1}$

$(a+1)(a-1)$

LCD: $(a+1)(a-1)$
 $* a \neq \pm 1$

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

2. Solve: $\frac{10}{2y+8} - \frac{7y+8}{y^2-16} = \frac{-8}{2y-8}$

$2(y+4) \quad (y+4)(y-4)$

LCD: $2(y+4)(y-4)$
 $* y \neq \pm 4$

$$\frac{10(y-4)}{2(y+4)(y-4)} - \frac{2(7y+8)}{2(y+4)(y-4)} = \frac{-8(y+4)}{2(y+4)(y-4)} \Rightarrow 10y-40-14y-16 = -8y-32$$

$$-4y-56 = -8y-32$$

$$4y = 24$$

$$y = 6$$

3. Algebraically prove $\frac{1}{x+1} + \frac{x}{x-6} - \frac{5x-2}{x^2-5x-6} = \frac{x-4}{x-6}$

$(x-6)(x+1)$

LCD: $(x-6)(x+1)$
 $x \neq +6, -1$

$$\frac{1(x-6)}{(x+1)(x-6)} + \frac{x(x+1)}{(x+1)(x-6)} - \frac{(5x-2)}{(x+1)(x-6)} = \frac{x-4}{x-6}$$

$$\frac{x-6 + x^2+x - 5x+2}{(x+1)(x-6)} = \frac{x-4}{x-6}$$

$$\frac{x^2-3x-4}{(x+1)(x-6)} = \frac{x-4}{x-6}$$

$$\frac{(x-4)(x+1)}{(x+1)(x-6)} = \frac{x-4}{x-6}$$

$$\frac{x-4}{x-6} = \frac{x-4}{x-6} \checkmark$$

STOP DOUBTING YOURSELF, WORK HARD, AND MAKE IT HAPPEN.