# MAT 104 Quiz 19

Monday, November 1, 2004

1. Simplify

$$\frac{2x+1}{x+3} - \frac{x-1}{x+3}$$

$$\begin{aligned}\frac{2x+1}{x+3} - \frac{x-1}{x+3} &= \frac{(2x+1)-(x-1)}{x+3} \\ &= \frac{x+2}{x+3}\end{aligned}$$

2. Simplify

$$\frac{3}{z^2} + \frac{3}{z}$$

$$\begin{aligned}\frac{3}{z^2} + \frac{3}{z} &= \frac{3}{z^2} + \frac{3z}{z^2} \\ &= \frac{3+3z}{z^2} \\ &= \frac{3(z+1)}{z^2}\end{aligned}$$

3. Simplify

$$\frac{3x}{x+3} + \frac{x+2}{2x^2+7x+3}$$

$$\begin{aligned}\frac{3x}{x+3} + \frac{x+2}{2x^2+7x+3} &= \frac{3x}{x+3} + \frac{x+2}{(2x+1)(x+3)} \\ &= \frac{3x(2x+1)}{(x+3)(2x+1)} + \frac{x+2}{(2x+1)(x+3)} \\ &= \frac{3x(2x+1)+(x+2)}{(x+3)(2x+1)} \\ &= \frac{6x^2+4x+2}{(x+3)(2x+1)} \\ &= \frac{2(3x^2+2x+1)}{(x+3)(2x+1)}\end{aligned}$$