

## MAT 104 Quiz 21

Monday, November 1, 2004

1. Solve

$$\frac{2}{x} = 3$$

$$\begin{aligned}\frac{2}{x} = 3 &\implies 2 = 3x \\ &\implies x = \frac{2}{3}\end{aligned}$$

2. Solve

$$\frac{3x-2}{x+1} = 5 - \frac{2x+1}{x-1}$$

$$\begin{aligned}\frac{3x-2}{x+1} = 5 - \frac{2x+1}{x-1} &\implies (3x-2)(x-1) = 5(x+1)(x-1) - (2x+1)(x+1) \\ &\implies 3x^2 - 5x + 2 = 5x^2 - 5 - (2x^2 + 3x + 1) \\ &\implies 3x^2 - 5x + 2 = 3x^2 - 3x - 6 \\ &\implies -2x = -8 \\ &\implies x = 4\end{aligned}$$

3. For  $f(x) = \frac{x+1}{x-1}$ , find  $a$  such that  $f(a) = 4$ .

$$\begin{aligned}f(a) = 4 &\iff \frac{a+1}{a-1} = 4 \\ &\iff a+1 = 4(a-1) \\ &\iff a+1 = 4a-4 \\ &\iff a = \frac{5}{3}\end{aligned}$$