

MATH 162 Quiz 2 NAME:

1. Simplify $\frac{4x}{3x-4} + \frac{8}{3x^2-4x} + \frac{2}{x}$
2. Solve for x , $(x+3)^3 - (3x-1)^2 = x^3 + 4$.

Solutions:

(1)

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

(2)

$$\begin{aligned}(x+3)^3 - (3x-1)^2 &= x^3 + 4 \\ x^3 + 9x^2 + 27x + 27 - 9x^2 + 6x - 1 &= x^3 + 4 \\ 33x &= -22 \\ x &= -\frac{2}{3}.\end{aligned}$$