

NAME: Solution

MAC 1147 Section 3079
Quiz One

Please show all of your work in a NEAT and ORGANIZED fashion.

1. (3 points) Rewrite the following expression with positive exponents and simplify:

$$\begin{aligned}(7x^2)^2 (7x^3y)^{-1} &= \\ (7^2)(x^4)(7^{-1})(x^{-3})(y^{-1}) &= \\ (7^{2-1})(x^{4-3})(y^{-1}) &= \\ 7xy^{-1} &= \frac{7x}{y}\end{aligned}$$

2. (3 points) Perform the addition and simplify:

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

3. (a) (1 point) Evaluate the following expression at $x = -2$:

$$\begin{aligned}2x^2 - 4x - 6 \\ 2(-2)^2 - 4(-2) - 6 &= \\ 2(4) + 8 - 6 &= 10\end{aligned}$$

- (b) (2 points) Completely factor the following expression:

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