

NAME: Solution

MAC 1147 Section 3077
Quiz One

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

1. (3 points) Simplify the following radical expression (where $y \geq 0$):

$$\begin{aligned}\sqrt{12x^2y^3} &= \\ \sqrt{(2^2)(3)x^2y^3} &= \\ 2|x| \sqrt{3y^2(y)} &= \\ (2|x|)y \sqrt{3y} &= \end{aligned}$$

- (3 points) Perform the subtraction and simplify:

$$\begin{aligned}\frac{x-1}{x+3} - \frac{x-6}{x+2} &= \\ \frac{(x-1)(x+2)}{(x+3)(x+2)} - \frac{(x-6)(x+3)}{(x+3)(x+2)} &= \\ \frac{\cancel{x^2} + 2x - x - 2}{(x+3)(x+2)} - \frac{\cancel{x^2} + 3x - 6x - 18}{(x+3)(x+2)} &= \\ \frac{x-2+3x+18}{(x+3)(x+2)} = \frac{4x+16}{(x+3)(x+2)} &= \end{aligned}$$

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

$$\begin{aligned}4x^2 + 12x + 9 &= \\ 4(-1)^2 + 12(-1) + 9 &= \\ 4(1) - 12 + 9 &= 1\end{aligned}$$

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

$$\begin{aligned}4x^2 + 12x + 9 &= \\ (2x)^2 + 2(2)(3)x + 3^2 &= \\ (2x+3)^2 &= \end{aligned}$$