

NAME: Miss Robinson

MAC 1147

oops Quiz One (Sample)

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

1. (3 points) Simplify the following radical expression:

$$\sqrt[3]{16x^3yz^{10}} = \sqrt[3]{2^4x^3yz^{10}} = \sqrt[3]{(2^3)(2)x^3yz^9z} = 2xz^3\left(\sqrt[3]{2yz}\right)$$

NOTE: We do

not need to worry about absolute value in this case, since 3 is odd.

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

$$\frac{x+3}{x^2+3x+2} \div \frac{x^2+4x+3}{x^2+4x+4} =$$

$$\frac{x+3}{(x+2)(x+1)} \div \frac{(x+3)(x+1)}{(x+2)^2} =$$

$$\frac{x+3}{(x+2)(x+1)} \cdot \frac{(x+2)(x+2)}{(x+3)(x+1)} = \frac{x+2}{(x+1)^2}$$

$$\frac{x+2}{x^2+2x+1}$$

NOTE: I would also accept

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

$$3x^2 - 5x - 2$$

$$3(-2)^2 - 5(-2) - 2 =$$

$$3(4) + 10 - 2 = 20$$

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

$$3x^2 - 5x - 2 =$$

$$3x^2 - 6x + x - 2 =$$

$$3x(x-2) + (x-2) =$$

$$(3x+1)(x-2)$$

NOTE: Here, I factor the trinomial by grouping; see page A32, example 14 for an explanation of this method.