

Algebra 201-007-50 C1

Quiz 9

November 6, 2008

Name: SOLUTIONS
Student ID: _____

1. (5 marks). Simplify the complex fraction:

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

$$= \frac{x \cdot \frac{x}{x} - \frac{y^2}{x}}{1 \cdot \frac{x}{x} + \frac{y}{x}} = \frac{\frac{x^2}{x} - \frac{y^2}{x}}{\frac{x}{x} + \frac{y}{x}} = \frac{\frac{x^2 - y^2}{x}}{\frac{x + y}{x}}$$

$$= \frac{x^2 - y^2}{x} \cdot \frac{x}{x + y} = \frac{x^2 - y^2}{x} \cdot \frac{x}{x + y}$$

$$= \frac{(x - y)(\cancel{x + y})}{\cancel{x}} \cdot \frac{\cancel{x}}{x + y} = x - y$$

2. (5 marks). Solve for x :

$$\frac{5x}{x-2} - \frac{4x}{2x-7} = 3$$

$$\text{LCD} = (x-2)(2x-7)$$

$$(\cancel{x-2})(2x-7) \frac{5x}{\cancel{x-2}} - (x-2)(\cancel{2x-7}) \frac{4x}{\cancel{2x-7}} = (x-2)(2x-7)3$$

$$(2x-7)(5x) - (x-2)(4x) = (x-2)(2x-7)(3)$$

$$(10x^2 - 35x) - (4x^2 - 8x) = (2x^2 - 7x - 4x + 14)(3)$$

$$10x^2 - 35x - 4x^2 + 8x = (2x^2 - 11x + 14)(3)$$

$$6x^2 - 27x = 6x^2 - 33x + 42$$

$$6x^2 - 27x - 6x^2 + 33x - 42 = 0$$

$$6x - 42 = 0$$

$$6x = 42$$

$$x = 7$$