Algebra 201-007-50 03
Quiz 10
November 14, 2008

Name: _SOLUTIONS_

Student ID: _____

1. *(4 marks)*. Simplify:

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

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

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

$$= x - y$$

2. *(3 marks).* Solve for x:

$$1 - \frac{12}{x^2 - 4} = \frac{3}{x + 2}$$

$$1 - \frac{12}{(x+2)(x-2)} = \frac{3}{x+2} \qquad LCD: (x+2)(x-2)$$

$$(x+2)(x-2)(1) - (x+2)(x-2)\frac{12}{(x+2)(x-2)} = (x+2)(x-2) \cdot \frac{3}{x+2}$$

$$x^2 - 4 - 12 = 3(x-2)$$
$$x^2 - 16 = 3x - 6$$
$$x^2 + 3x - 10 = 0$$

$$(x+5)(x-2) = 0$$

$$x = -5 \qquad\qquad x = 2$$
$$VALID \qquad\qquad EXTRANEOUS$$

$$\therefore \boxed{x = -5}$$

3. How much money did a man have if he had $10 left after spending $\frac{1}{2}$ of his money at one stop and $\frac{1}{3}$ of his money at another stop.

LET x BE THE STARTING AMOUNT OF MONEY.

$$x - \frac{1}{2}x - \frac{1}{3}x = 10 \qquad LCD: 6$$

$$6x - 6 \cdot \frac{1}{2}x - 6 \cdot \frac{1}{3}x = 6 \cdot 10$$

$$6x - 3x - 2x = 60$$
$$x = 60$$

$\therefore$ HE HAD $60.