

Math 172 – Quiz #5

November 29, 2013

Name: _____

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Show all work to get full credit.

Total: 40 points

1. State the domain of the following rational expression in either set-builder notation or interval notation. (3 points)

$$\frac{y}{2y^2 - 72}$$

2. Reduce each rational expression to lowest terms. (6 points)

a) $\frac{6y^{2x+1} + 12y^{2x}}{42y + 84}$

b) $\frac{2b^2 + 2b - 4}{b^2 + 2b - 3}$

3. Perform the indicated operations. Express your answer in lowest terms. (7 points)

a) $\frac{2r-4}{3r-3} \div \frac{3r^2-4r-4}{r-r^2}$ _____

b) $\frac{k}{k^2-4} - \frac{1}{k^2-2k}$ _____

4. Find the quotient and remainder of $\frac{2x^3-3x^2+6}{x^2-1}$. Is x^2-1 a factor of $2x^3-3x^2+6$?

(5 points)

quotient: _____

remainder: _____

factor? _____

5. Find the solution set for the following equations.

(9 points)

a) $\frac{5}{2x-2} - \frac{1}{x+3} = \frac{1}{x-1}$

b) $\frac{4}{y+1} + \frac{8}{y^2-1} = -1$

6. Simplify the following complex fraction. (4 points)

$$\frac{\frac{2x}{x+3} - \frac{x}{x-2}}{\frac{x}{x+3} - \frac{2x}{2-x}}$$

7. Some tourists in Victoria want to take a tour of the harbour in one of the harbour ferries. They are quoted a group rate of \$36. Just before they set off, two more people decide to join the tour. If the cost per person decreases by \$3 due to these new people, how many tourists were there originally? (6 points)