

Name: \_\_\_\_\_

**M55 Exam 2 Review Sheet**

**Exam 2 will be on Tuesday, October 24, 2006.** The exam will cover the following topics: simplifying rational expressions, operations with rational expressions, complex fractions, fractional equations, simplifying radicals, operations with radicals, rationalizing denominators, and solving radical equations. If a problem states to *check*, be sure to show the check. Put a box around your final answer. Graphing calculators, though not required, may be used on the exam, with the following exceptions: TI-89, TI-92, or any calculator with symbolic manipulation abilities.

1. Reduce the rational expression to lowest terms:  $\frac{x^3y - x^2y^2}{xy^3 - x^2y^2}$
2. Express the quotient in simplest form:  $\frac{4x^2 - 100}{x^2 + x - 6} \div \frac{20 - 4x}{2x^2 - 9x + 10}$
3. Express the product in simplest form:  $\frac{x^2 - 3x}{2x^2 + x - 6} \cdot \frac{x^2 - 4}{x^2 - 5x + 6}$
4. Combine and simplify:  $\frac{d^2 + 8}{d^3 - d} - \frac{8 - d}{d^3 - d}$
5. Combine and simplify:  $\frac{x}{x^2 + 3x - 4} - \frac{x + 1}{2x^2 - 2}$
6. Express in simplest form:  $\frac{x^2 - 9}{2x - 8} \div \frac{6 - 2x}{x - 4}$
7. Express in simplest form:  $\frac{\frac{x}{4} - \frac{1}{x}}{1 - \frac{2}{x}}$
8. Express in simplest form:  $\frac{\frac{3}{x-2} - \frac{3}{x+2}}{\frac{12}{x^2-4}}$
9. Solve and check:  $\frac{x-1}{x-5} - \frac{1}{x} = \frac{20}{x^2-5x}$

10. Solve and check:  $\frac{10}{k^2} + \frac{2}{k} = -\frac{1}{10}$

11. Solve for all values of  $q$  that satisfy the equation  $\sqrt{3q+7} = q+3$

12. Solve:  $x + \sqrt{4x-7} = 3$

13. Express in simplest radical form:  $-4\sqrt[3]{54a^6b^4}$

14. Combine and express the result in simplest form:  $\frac{40}{\sqrt{8}} - \sqrt{50}$

15. Rationalize the denominator and simplify the result:  $\frac{6}{5-2\sqrt{7}}$

16. Rationalize the denominator and simplify the result:  $\frac{\sqrt{5} + 3\sqrt{2}}{\sqrt{5} - 3\sqrt{2}}$

17. Express in simplest form:  $(1 - 8\sqrt{2})^2$

18. Express in simplest radical form:  $3\sqrt{\frac{4}{3}} + 6\sqrt{48}$

19. If  $(\sqrt{128} - \sqrt{72})$  is divided by  $\sqrt{8}$ , the result is

(1) 1

(3)  $\sqrt{7}$

(2)  $8\sqrt{2} - 3$

(4)  $4 - 6\sqrt{2}$

20. Combine and express the result in simplest form:  $x\sqrt{48} - 2\sqrt{75x^2}$