Math 1050, Quiz #8, Spring 2014   Name ___KEY___

Instructions: Show all work. If you are using your calculator to solve, you may sketch a graph or indicate keys pressed to show work. Exact values: do not use decimals in your answers unless the problem begins with decimals, or is a word problem, or unless specifically asked to round. All answers should be fully reduced for full credit. Draw diagrams to help organize the data (this is worth partial credit). If you do your work on scrap paper, you should indicate that directly on the test paper along with your final answer. It is preferable, if you can, to do work directly on the quiz.

1. Factor the polynomial $18ax - 9ay - 12bx + 6by$ by grouping.

$$9a(2x-y) - 6b(2x-y)$$
$$= (9a-6b)(2x-y)$$

2. Simplify the expression $\dfrac{1{,}200{,}000}{0.003 \times 2{,}000{,}000}$ and write the solution in scientific notation.

$$= 200$$
$$2 \times 10^2$$

3. Simplify. $(2a^5b^2)^3 \cdot \left(\dfrac{4a^{-2}b^3}{3a}\right)^{-2}$ Your final expression should have only positive exponents.

$$8a^{15}b^6 \left(\frac{4^{-2}a^4 b^{-6}}{3^{-2}a^{-2}}\right) =$$

$$8a^{15}b^6 \left(\frac{3^2 a^2 \cdot a^4}{4^2 b^6}\right) = 8a^{15}b^6 \left(\frac{9a^6}{16 b^6}\right) =$$

$$\frac{9a^{21}}{2}$$

4. Divide $\dfrac{5x^5+12x^3+2x^2-9x+8}{x^2+3}$. Write the solution in $Quotient + \dfrac{Remainder}{Divisor}$ form.

$$
\begin{array}{r}
5x^3 - 3x + 2 \\
x^2+3 \overline{\smash{\big)}\ 5x^5 + 0x^4 + 12x^3 + 2x^2 - 9x + 8}
\end{array}
$$

$-\ 5x^5\ +\ \ -15x^3$

$-3x^3 + 2x^2 - 9x + 8$

$+\ 3x^3\qquad\qquad +\ 9x$

$2x^2 + 8$

$-\ 2x^2 \mp 6$

2

$$5x^3 - 3x + 2 + \dfrac{2}{x^2+3}$$