

Suffolk County Community College
Michael J. Grant Campus
Department of Mathematics

Spring 2016

MAT 111: Algebra-II
Final Exam

Instructor:

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Please print the requested information in the spaces provided:

Student:

Name:

Student Id:

Email:

include to receive the final grade via email ONLY if you are not getting email updates already

- *Notes and books are permitted on this exam.*
- *Graphing calculators, computers, cell phones and any communication-capable devices are prohibited. Their mere presence in the open (even without use) is a sufficient reason for an immediate dismissal from this exam with a failing grade.*
- *You will not receive full credit if there is no work shown, even if you have the right answer. Use back pages if necessary. Please don't attach additional pieces of paper: if you run out of space, please ask for another blank final.*

Problem 1. Write the following fraction without using negative or fractional exponents. You can use only radicals, fractions and positive integer exponents in the final answer.

$$\frac{\sqrt[3]{300 x^7 y^4}}{5 \sqrt[3]{9 x^3 y^6}}.$$

Space for your solution:

Problem 2. Find the slope-intercept equation of the line that joins the point $(-3, 5)$ and $(1, -7)$.

Space for your solution:

Problem 3. Solve the inequality:

$$|x + 5| \leq x - 8.$$

Space for your solution:

Problem 4. Solve the equation:

$$\frac{1}{x} + \frac{1}{x+2} = \frac{x}{x^2 + 2x}.$$

Space for your solution:

Problem 5. Perform long division of the polynomial $7x^2 - 3$ by the polynomial $x + 5$. Use the result of the division to write the rational expression $\frac{7x^2-3}{x+5}$ as a sum of a polynomial and another, proper, rational expression.

Space for your solution:

Problem 6. Normal saline (NS) is the solution of 9 grams of sodium chloride NaCl (salt) per one liter of water. Since it is similar to human blood in osmolarity, it is used frequently in intravenous drips (IVs), eye drops, nasal washes and to flush wounds and skin abrasions. Sea water contains about 35 grams of salt per liter (the exact figure depends on location). Regular coke contains almost 2 grams of salt per liter.

How much of coke and sea water must be mixed to get 3 liters of a mixture with normal saline concentration?

Space for your solution:

Problem 7. Solve the equation

$$3x^2 + 5x - 4 = 0.$$

Space for your solution: