

## Math 40 – Department Final Exam Review Tussy/Gustafson 4<sup>th</sup> ed

Notice that topics here are arranged a little bit differently than the order in which you learned them. This is to help you to see the similarities and contrasts between all the different topics you have learned over the semester. Example problems are listed with each topic; all chosen problems are those that have solutions in the back of the textbook.

**Suggested study plan:** Plan on studying for seven days. Each day, practice the problems in one category and work through a couple of problems in the “Applications” category. In this manner, you can prepare for your final exam over one week. Certainly, if you are having trouble with a topic, you will want to do more than the suggested problems to gain a mastery of the topic.

<b>Simplify</b>	Simplify a numeric expression using the order of operations and simplify absolute values.	1.7 #67, 77, 87
	Convert between decimal and scientific notation.	5.3 #15, 27, 31, 35
	Simplify signed numbers and fractions raised to exponents.	1.7 #27, 28, 31, 5.2 #15, 65
	Simplify an exponential expression using the various rules of exponents.	5.1 #39, 51, 75
	Simplify terms with negative and zero exponents.	5.2 #19, 33, 43, 55, 57, 65
	Completely factor a polynomial.	5.47 #3-18
	Simplify a rational expression.	7.1 #45, 47, 81, 83
	Simplify complex fractions.	7.5 #29, 33, 57, 61
<b>Evaluate</b>	Evaluate an algebraic expression for given variable values.	1.8 #87, 91 5.5 #57 6.1 #21
	Determine whether a number is a solution to a given equation.	2.1 #19, 29, 31
	Determine whether a point is a solution to a linear equation.	3.2 #19, 27
	Construct a table of values for a given linear equation and graph the equation.	3.2 #49, 55
	Construct a table of values for a given simple <b>nonlinear</b> equation and graph the equation.	5.4 #69, 75
<b>Solve</b>	Solve linear equations in one variable, including those with parentheses.	2.2 #27, 39, 47, 61, 87
	Solve a linear inequality. Use interval notation	2.7 #37, 45, 53, 67
	Solve literal equations.	2.4 #39, 45, 53, 61, 71 7.6 #59, 67
	Clear fractions from linear equations.	2.2 #67, 69, 79
	Solve a quadratic equation that can be solved by factoring.	6.7 #23, 33, 39, 49, 63, 65
	Solve a proportion	7.8 #35, 39, 47
	Solve a rational equation	7.6 #25, 37, 51, 53

<b>Add or Subtract</b>	Add or subtract signed numbers and fractions	1.4 #35, 53 1.5 #37, 53
	Add or subtract variable expressions using like terms.	5.5 #21, 33
	Add or subtract polynomials	5.5 #39, 61, 65, 81, 93
	Add or subtract rational expressions with like or unlike denominators.	7.3 #41, 43, 51 7.4 #39, 45, 53, 55
<b>Multiply</b>	Multiply signed numbers	1.6 #41, 43
	Multiply fractions	1.2 #87, 93 1.6 #85
	Multiply numbers written in scientific notation.	5.3 #61, 63, 71
	Multiply two exponential expressions and apply the correct exponent rules.	5.1 #41 5.6 #19, 21, 23
	Multiply polynomials of various sizes.	5.6 #29, 53, 59, 71
	Multiply rational expressions and simplify.	7.2 #21, 27, 31
	Simplify an exponential expression that is raised to a power.	5.1 #79, 109, 115 5.2 #87, 97
	Simplify a squared binomial.	5.7 #15, 23, 27
<b>Divide</b>	Divide signed numbers. Evaluate zero in quotients.	1.6 #63, 73, 75
	Divide fractions	1.2 #77, 91 1.6 #77
	Divide two exponential expressions	5.1 #57, 97 5.2 #91, 107, 115
	Divide numbers written in scientific notation.	5.3 #67, 69
	Divide a polynomial by a monomial.	5.8 #35, 47
	Divide a polynomial by a binomial using polynomial long division.	5.8 #49, 71, 77, 95
	Divide rational expressions and simplify.	7.2 #49, 53, 59
<b>Lines</b>	Calculate the slope between two points or from the graph of a line.	3.4 #23, 25, 35, 41, 47
	Understand the equations and slopes of horizontal and vertical lines.	3.2 #69, 71 3.4 #45, 61, 67
	Rearrange and interpret the equation of a line to find the slope and y-intercept.	3.5 #13, 37, 43
	Find the intercepts of a line. Use intercepts to graph.	3.2 #21, 37
	Find the equations of a line in various circumstances.	3.6 #13, 21, 25, 35, 43, 47
	Given the slope and y-intercept, write the equation for the line and graph it.	3.5 #51, 57
	Graph a line given its equations.	3.5 #67, 73
	Graph a linear inequality.	3.7 #39, 49, 63

<b>Applications</b>	Translate words into an algebraic equation and solve.	2.5 #13, 15, 41 2.7 #99
	Plot data and interpret the meaning of a specific point.	3.1 #37, 39
	Solve percent problems.	2.3 #31, 39, 45
	Given a mathematical equation that models a real-world situation, evaluate the equation for specific data and interpret the result. Note: You will be given the appropriate equation to use.	2.4 #15, 23 3.2 #77, 79 3.3 #81 5.4 #83 7.1 #97
	Solve problems that involve area and perimeter of simple geometric figures.	2.4 #81, 85
	Translate words describing a linear relationship into a linear equation.	3.5 #95, 97 3.6 #77
	Solve work-rate problems.	7.7 #35, 39
	Solve distance, rate, time problems.	2.4 #19 7.7 #23, 29
	Solve proportion problems	7.8 #53, 79, 85, 87