

# **Math 129-950/951**

## Final Exam Information

The comprehensive final exam is worth 100 points and is scheduled for Thursday, May 13, during class. The final will consist of roughly 20 free-response problems chosen from the section objectives listed below. Any specific topics covered in the course, but not listed below, will not be assessed on the final.

To prepare for the final exam, you should study material from your class notes, review packets, and old tests. Focus your efforts on the following objectives (which relate very closely to course outcomes). The numbers in brackets are the corresponding course objectives from the syllabus.

### Test 1 objectives

1. Solve linear inequalities. [3]
2. Solve absolute value inequalities. [11]
3. Solve quadratic equations by using the quadratic formula. [7]
4. Solve rational equations that reduce to linear or quadratic. [3,7,11]

### Test 2 objectives

1. Solve radical equations. [11]
2. Find the  $x$ - and  $y$ -intercepts of a line. [3]
3. Find and apply the slope-intercept form of the equation of a line. [2,4]
4. Graph a line using its slope and a point. [2,4]
5. Find lines parallel or perpendicular to given lines. [2,4]
6. Determine the domain and range of a function. [1]

### Test 3 objectives

1. Apply the transformations (shifts, reflections, stretches, and compressions) to basic graphs to obtain more general graphs. [9]
2. Define and evaluate piecewise functions. [1,5]
3. Sketch the graph of a piecewise-defined function. [1,5]
4. Compute a composition of functions. [5]
5. Write a function as a composition of functions. [5]

*Turn over.*

## Recent objectives

1. Find the vertex, intercepts, and symmetry axis of a parabola. [8]
2. Find the zeros of a polynomial and determine their multiplicities. [12]
3. Carry out polynomial long division and synthetic division. [12]
4. Apply the remainder and factor theorems. [12]
5. Factor a polynomial with real coefficients into a product of linear factors and irreducible quadratic factors. [12]
6. Use multiplicities of zeros and end behavior to graph a polynomial function. [12,13]
7. Determine the vertical, horizontal, and/or slant asymptotes of the graph of a rational function. [13]
8. Solve polynomial inequalities. [11,12]