

PRACTICE EXAM 1 - MATH 140

DATE: Tuesday, September 20

INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 3 points. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Consider the line L whose equation is $x + 3y = 3$.
 - (a) Compute L 's intercepts and use them to graph L .
 - (b) Find the equation of the line that is parallel to L and passes through the point $(1, 3)$.
 - (c) Find the equation of the line that is perpendicular to L and passes through the point $(-2, -1)$.
2. A motorboat can maintain a constant speed of 16 miles per hour relative to the water. The boat makes a trip upstream to a certain point in 20 minutes. The return trip takes 15 minutes. What is the speed of the current?
3. Study (find vertex, opening direction, intercepts and sketch the graph) the quadratic function $f(x) = -x^2 - x + 2$.
4. Find the equation of the parabola with vertex $V = (-2, 3)$ passing through the point $(1, -1)$.
5. Solve the quadratic inequality $-x^2 + 4 > -x - 2$.
6. The diagonal of a rectangle measures 10 inches. If the length is 2 inches more than the width, find the dimensions of the rectangle.