

PRACTICE EXAM 2 - MATH 111

DATE: Monday, October 11

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. Use the small table method to graph the function

$$f(x) = \begin{cases} |x - 1|, & \text{if } x \leq 3 \\ -2x + 9, & \text{if } x > 3 \end{cases}$$

2. Study (find vertex, opening direction, intercepts and roughly graph) the function $f(x) = -x^2 - 4x - 1$.
3. Find the equation of the parabola with vertex $V = (2, 3)$ that has x -intercept -1 .
4. A charter flight charges a fare of \$ 200 per person, plus \$ 4 per person for each unsold seat on the plane. If the plane holds 100 passengers and if x represents the number of unsold seats, find
 - (a) An expression for the total revenue received for the flight.
 - (b) The number of unsold seats that will produce the maximum revenue.
 - (c) The maximum revenue.
5. Use the table method to roughly sketch the graph of the polynomial function $f(x) = x^3 - 2x^2 - 8x$.
6. Study (find domain, intercepts, asymptotes, make sign table and roughly graph) the rational function $f(x) = \frac{x^2+2x}{x^2-4x-5}$.