

QUIZ 2 - MATH 112

Friday, January 22

YOUR NAME: _____

George Voutsadakis

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Find the domain of the function $f(x) = \frac{1}{x^3 - 7x^2 + 12x}$.

2. Compute and simplify the difference quotient of $f(x) = \sqrt{x-1}$ at x .

3. (a) Sketch the graph of $g(x) = -x^2 - 2x$ (find vertex, opening direction and intercepts and clearly label them on the graph).

- (b) Sketch the graph of $h(x) = x - 2$ (find intercepts and clearly label them on your graph).

- (c) Use parts (a) and (b) to clearly sketch the graph of the piece-wise defined function
- $$f(x) = \begin{cases} -x^2 - 2x, & \text{if } x < 0 \\ x - 2, & \text{if } x \geq 0 \end{cases} .$$