

Math 1271 Quiz 1

January 30, 2014

Name: _____

TA: _____

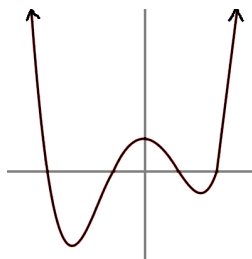
NO CALCULATORS. NO HANDHELD DEVICES. NO BOOKS OR REFERENCE MATERIALS OF ANY KIND.

Time allowed: 20 minutes; Grader: Ashley Earls. Good luck!

1. (a) (15 points) Find the domain of $f(x) = \ln(e^x - 3)$.

(b) (20 points) Find $f^{-1}(x)$ and state its domain.

2. (15 points, no partial credit) Below is the graph of a function f with domain \mathbb{R} and target \mathbb{R} .



Pick the correct statement.

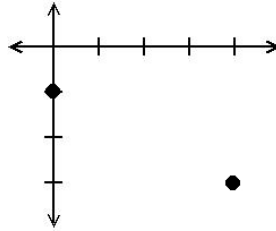
- (a) f is both one-to-one and onto.
- (b) f is one-to-one but not onto.
- (c) f is onto but not one-to-one.
- (d) f is neither one-to-one nor onto.

PLEASE SEE THE OTHER SIDE FOR MORE PROBLEMS.

3. (15 points, no partial credit) True or false? If $h(x) = (x + 1)(x^2 - 3x + 4)$, then $x = -1$ is a root of $h(x)$ of multiplicity 1.

4. Let $f(x) = \left[-\frac{1}{2}x - 1\right] \left[\frac{x-2}{x-2}\right]$.

- (a) (15 points) Sketch a graph of f that includes the points $(0, -1)$ and $(4, -3)$.



- (b) (20 points) Find the largest δ such that

$$0 < |x - 2| < \delta \quad \Rightarrow \quad |f(x) + 2| < 0.4 \quad .$$

PLEASE SEE THE OTHER SIDE FOR MORE PROBLEMS.