

Quiz #1

M1220-1

Fall 2003

Name: _____

Score: _____

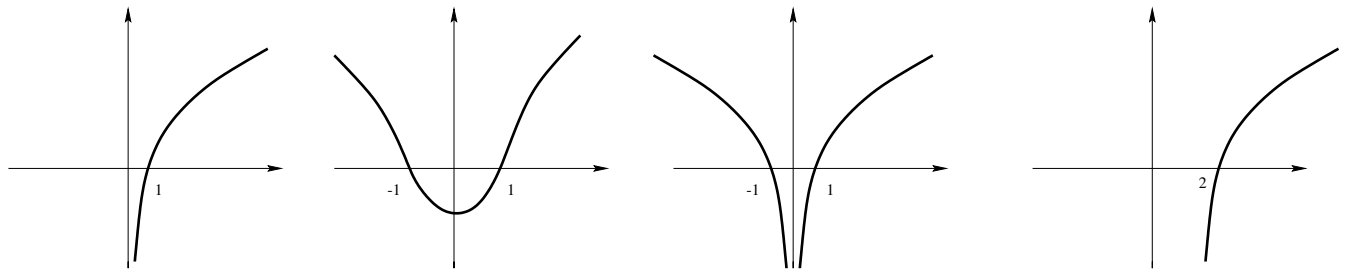
QUESTIONS: each question is worth 10 points. Give your answer and a short but complete motivation of it for full credit.

1. TRUE or FALSE?

$$\frac{d}{dx} \ln \frac{1}{x} = x$$

2. What is the graph of the function

$$y = \ln(x^2)$$



3. Circle the true statements. NOTICE!! More than one statement could be correct , or they may all be incorrect!!!

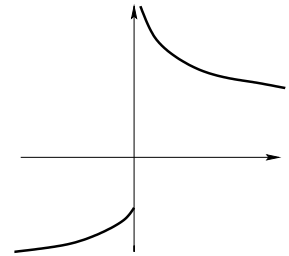
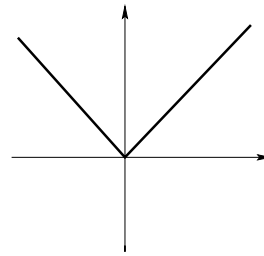
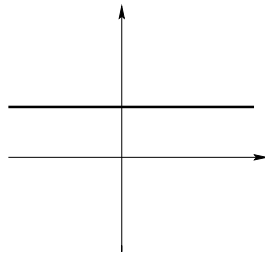
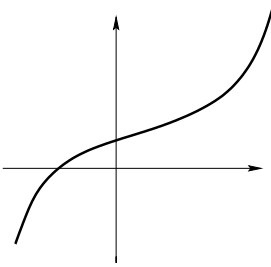
Given the functions:

$$y = \ln(x^4)$$

$$y = 4 \ln x$$

- (a) the two functions are the same function;
- (b) the two functions agree on infinitely many points;
- (c) the domains of definition of the two functions are different;
- (d) the two functions agree at a finite number of points.

4. Which of the following functions admit an inverse?



5. Is “mother” an invertible function, if we assume the domain to be the set of all human beings? If it isn't, can you come up with some restriction of the domain that makes it invertible?

PROBLEMS: each problem is worth 25 points. Show me enough work to let me know what you are doing!

1. Using logarithmic differentiation find the derivative of

$$y = \frac{(x+1)^4}{(x-1)^3}$$

2. Determine whether the function

$$y = x^3 + x$$

has an inverse. If so, sketch a graph of f^{-1} .