

Home Test 1
Math 270 DL01

Name _____

Semester _____

Grade _____

You may use your text, graphing calculator, and any completed homework or notes on this test. You may not get help from other people or resources.

Please write all of your work on your own paper. Attach this to the front of your work before sending it to me. Please do the problems in order, numbered down the left side of your paper. You may write on the back of your paper in either pencil or ink (neatly please).

1) Find the domain of each of the following functions. Write the domain in either interval or set notation.

a) $y = \frac{x+2}{x^2-4}$

b) $f(x) = 3x^2 - 2x + 5$

c) $g(x) = \sqrt{2x-1}$

2) Find $\frac{f(x+h)-f(x)}{h}$ simplified for the following functions.

a) $f(x) = 2 + 3x$

b) $f(x) = 3x^2 - 4x + 5$

3) Given $f(x) = \sqrt{2x-1}$ and $g(x) = x^2 + 1$, find $f(g(x))$.

4) Find the inverse function of each function below.

a) $f(x) = \frac{7}{x+3}$

b) $g(x) = \sqrt[3]{2x-3}$

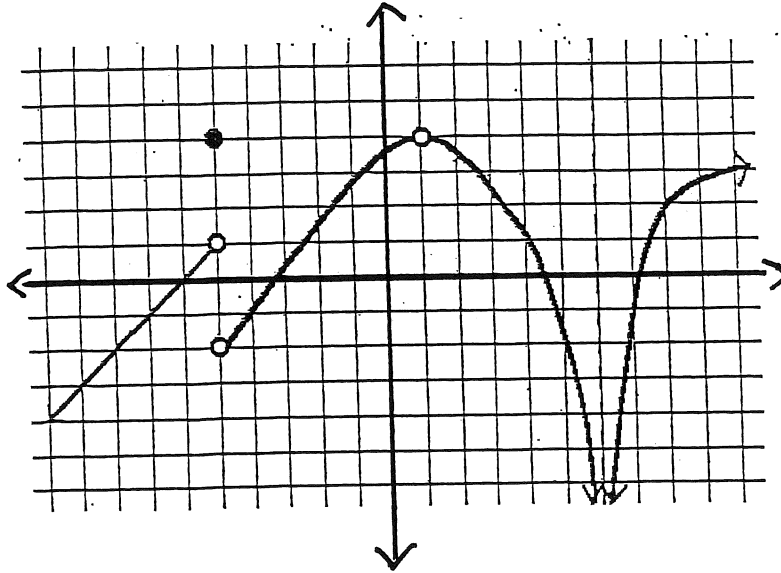
5) Evaluate $\lim_{x \rightarrow 3} \frac{x^2 + 2x - 15}{x^2 + 3x - 18}$

6) Given the graph of $f(x)$ below, find the following:

a) $\lim_{x \rightarrow -8} f(x)$

b) $\lim_{x \rightarrow -5} f(x)$

c) $\lim_{x \rightarrow 1} f(x)$



7) Find the interval(s) of continuity for $f(x) = \frac{x+2}{x^2-4}$

8) Find the derivative, *using the definition* of the derivative.

$$f(x) = 3x - 4x^2$$

9) Find the equation of the tangent line to $g(x) = 3x^2 - 8$ at $x = 2$ *using the definition* of the derivative.