CLASS QUIZ: SEPTEMBER 26; TOPIC: FUNCTIONS

VIPUL NAIK

Your name (print clearly in capital letters): _____

Write your answer in the space provided. In the space below, you can explain your work if you want (this will not affect scoring). I may or may not get time to look at the work you have done, but it may help you recall how you arrived at a particular answer.

Note: The difficulty level of this quiz is *not* intended to be representative of the difficulty level of quizzes for this course. Today's quiz is meant as a first-day warm-up. If you're having trouble with these questions, this course level may be too advanced for you.

(1) Consider the function $f(x) := |x+1| - |x|$. For which of the following values of x is $f(x)$ equal to 0?
  (A) $-\frac{1}{2}$
  (B) $-\frac{1}{3}$
  (C) 0
  (D) $\frac{1}{3}$
  (E) $\frac{1}{2}$

  Your answer: _____

(2) Consider the function $f(x) := x^2 + 1$. What is the polynomial describing $f(f(x))$?
  (A) $x^2 + 2$
  (B) $x^4 + x^2 + 1$
  (C) $x^4 + x^2 + 2$
  (D) $x^4 + 2x^2 + 1$
  (E) $x^4 + 2x^2 + 2$

  Your answer: _____

(3) Consider the function $f(x) := \frac{x}{x^2+1}$. What is $f(f(1))$?
  (A) $1/5$
  (B) $2/5$
  (C) $4/5$
  (D) $5/4$
  (E) $5/8$

  Your answer: _____

(4) Consider the function $f(x) := x + 1$. What is $f(f(x))$?
(A) x
(B) $x + 2$
(C) $2x + 1$
(D) $(x + 1)^2$
(E) $x^2 + 1$

Your answer: _____

(5) If a circle has radius r, the area of the circle is πr^2. What is the area of a circle with diameter d?
(A) $\pi d^2/4$
(B) $\pi d^2/2$
(C) πd^2
(D) $2\pi d^2$
(E) $4\pi d^2$

Your answer: _____