Quiz 4

1. [2] TRUE/FALSE: Circle T in each of the following cases if the statement is *always* true. Otherwise, circle F. Let x be a real number and u and v be positive real numbers.

   T F $|x| = x$ for all x

   T F $\log(u + v) = \log(u) + \log(v)$

   T F $\log_b(a) = x$ exactly when $b^x = a$

   T F $\log(u - v) = \frac{\log(u)}{\log(v)}$

   Show *all* your work algebraically for each and simplify. No credit is given without supporting work. There are *two* sides to this quiz.

2. [3] (§3.3 # 35) Find all numbers x that satisfy

$$\log_3(x + 5) + \log_3(x - 1) = 2$$

3. Find a formula for the inverse function f^{-1} of the indicated function:

(a) [2] (§3.1 #29) $f(x) = 6 + x^3$

(b) [3] (§3.2 #49) $f(x) = \log_4(3x + 1)$