Spring 110

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.

$$T(F) |x| = x \text{ for all } x$$

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

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

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

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] ($\S 3.3 \# 35$) Find all numbers x that satisfy

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

3 log 3 (x+5)(x-1) = 2

$$x^{2}+4x-14=0$$

 $(x+5)(x-1)=9$
 $(x+5)(x-1)=9$

$$x^{2} + 4x - 14 = 0$$

$$x = -4 \pm \sqrt{16 - 4(1)(-14)}$$

$$= -4 \pm \sqrt{16 + 56}$$

$$= -4 \pm \sqrt{72}$$

$$= 4 \pm \sqrt{72}$$

$$= 4 \pm \sqrt{72}$$

== 2 ± VTQ

b/c donain X = +2+1/18

7-0-2

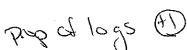
- 3. Find a formula for the inverse function f^{-1} of the indicated function:
 - (a) [2] (§3.1 #29) $f(x) = 6 + x^3$

$$X = 6+y$$

 $X - 6 = y^{3}$
 $(x - 6)^{\frac{1}{2}} = y$

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

$$4 \times = \log_4(3y+1)$$



$$4^{x}-1=3y$$

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