

University of Utah
School of Computing
CS 5210

CS 6210

Two Examples

Fall 2005

We consider floating point analysis for expression (1) and (2) below.
(Assume that x , y and z are machine numbers.)

(1) $(3x^2 - 4y)/(7z + 6)$

Ans: $\frac{((3*x^2(1+\epsilon_1))(1+\epsilon_2)-4y)(1+\epsilon_3)}{(7*z(1+\epsilon_4)+6)(1+\epsilon_5)}(1 + \epsilon_6)$

(2) $(\sqrt{x} + 3)^2/(32x + 1)$.

Ans: $\frac{((\sqrt{x}(1+\epsilon_1)+3)(1+\epsilon_2))^2(1+\epsilon_3)}{(32x+1)(1+\epsilon_4)}(1 + \epsilon_5)$

All e_i satisfy $|e_i| \leq 2^{-t}$.