

Fall, 1999  
Peterson

MATH 124.

Homework 1.

**DUE: Friday, Jan. 29.**

P1. Suppose that  $x \approx 0.240$ , using ordinary rounding procedures. This means that  $a \leq x < b$  for two easily determined exact decimal numbers  $a$  and  $b$ .

- (1) What are the numbers  $a$  and  $b$  ?
- (2) Using the inequality  $a \leq x < b$  (with your numbers for  $a$  and  $b$ ) get a similar double inequality for  $x^2$ .
- (3) What is your significant digits approximation for  $x^2$  ?

P2. Consider the points  $(1,3)$ ,  $(2,-7)$ ,  $(-11,15)$ ,  $(5,-6)$ , and  $(-3,4)$ .

- (1) Use your calculator to plot the points. Then find a good viewing window for your data and list it. Does it appear to you that the points lie exactly on a straight line?
- (2) Use your calculator to find the equation of the best fit line (LinReg) for this data. Record your best fit line equation.
- (3) Transfer your LinReg data to  $Y_1$  and then view the graph. Which of your five points seems to be the most "off" in terms of the line? Does your best fit line pass through any of the points?
- (4) Use the Table to approximate the Y-coordinate of the point on your best-fit line corresponding to  $x = 7$

P3. Review linear and quadratic equations by solving for  $x$  algebraically in each case. Exact solutions are necessary, and fractions and radicals in final answers need to be in reduced form.

- (1)  $2(x - 5) + 3 = 7$  .
- (2)  $x^2 - 3x - 4 = 0$  .
- (3)  $x^2 - 3x - 5 = 0$  .
- (4)  $x^2 + 4x + 1 = 0$
- (5)  $(x - 1)^2 = 5$  .

P4. Describe briefly what you might do to check your answers in P3 electronically.