ADDENDUM FOR CHAPTER 1: COMPLICATED CALCULATIONS

In each of the following exercises use paper and pencil to symbolically compute the required quantity. Then input the appropriate expression into the machine and press <ENTER> one time to calculate it. To calculate the next number simply edit the expression on the screen appropriately. (2nd ENTRY on the TI-86 will be handy here.) First put the symbolic result, then, as before, put the TI-86 answer on the left and the MAPLE answer on the right.

Exercise. The quadratic formula gives the roots of a polynomial of the form $p(x)=ax^2+bx+c$. The two roots from the quadratic formula are

Use the quadratic formula to find the two roots of each of the following polynomials:

i. $2x^2-5x-3$.

TI answer2	MAPLE answers

ii. $2x^2-1$.

TI answer2	MAPLE answers

iii. x^2+x+1.

TI answer2	MAPLE answers

Exercise. Use the law of cosines to find the largest angle in each of the following triangles. (Recall the law if cosines is $a^2=b^2+c^2-2bc \cos A$.) The inverse of the cosine function is $\cos^{-1}$ from the keyboard on the TI-86 and arccos in MAPLE.

A =

i. The sides are of lengths 8.20, 5.10, 4.10.

TI	MAPLE

ii. The sides are of lengths 9.6, 6.2, 4.3.

TI	MAPLE

iii. The sides are of lengths 19.4, 28.5, 33.6.

TI	MAPLE

Exercise. The monthly mortgage payments are given by the formula

$$p = iA/(1-(1+i)^{-n}),$$

where A is the amount borrowed, i is the interest per month (APR/12), and n is the total number of payment periods (12*number of years). What are the monthly payments if $100,000 is borrowed at 9% APR for each of the following time periods:

i.30 years?

TI	MAPLE

ii.20 years?

TI	MAPLE

iii. 10 years?

TI	MAPLE

In each of the above cases what is the total amount, TA, paid back at the end of the loan period?

Formula for TA =

i.

ii.

iii..

@Many educators believe it is no longer necessary for students to master the basic arithmetic skills such as adding, subtracting, multiplying, and dividing fractions. What is your opinion and why?