Math 103 contest and homework problem

Each of you will get a part of a shared secret. At least three people will need to share their information to obtain the secret. I created a quadratic polynomial, $y = B + \{?\}x + \{??\}x^2$. Each student in the class will get a (non-zero) value of x and the value y corresponding to that value of x. The secret is a word specified by the number B, using the rather simple method described below. Every student must participate in some group and send me "the secret" (the word) before the next class meeting. Also identify all of the participants in the group. The group which sends me the secret first (as determined by time-stamp on their e-mail) will win a real prize (bought by me, with my own money [!]). Hints are available by e-mail or in person.

Further rules

1. Each group may have 3, 4, or 5 members.
2. No more than 2 members of a group should be math or computer science majors. Majors are determined by what's listed on the student web page.

Numbers to letters (easy version)

The alphabet has 26 letters. Suppose we associate each letter with a two-digit number in the simplest way: `A` $\rightarrow$ 01, `B` $\rightarrow$ 02, ... , `Z` $\rightarrow$ 26. Thus the word `WIGGLE` would be associated to the number 230907071205 (`W` is the 23$^{\text{rd}}$ letter of the alphabet, `I` is the 9$^{\text{th}}$ letter of the alphabet, etc.).

Some more useful information about `Maple`

`Maple` can remember numbers and formulas. The instruction

A:=17324099;

will cause `Maple` to remember that you'd like the variable A to equal the number 17324099 (until you tell the program otherwise or exit the session). Please note that you must type *colon* (:) followed by *equal sign* (=) so `Maple` will attach the value 17324099 to the name, A. You can call variables by lots of names. Their names must begin with a capital or a small letter. Upper and lower case do matter, so that A and a are different variables to `Maple`. *Frog* is an allowable variable name. This name is <u>not</u> the same as *frog* or *FROG*. I sometimes use long variable names so that I won't get confused. You can also do arithmetic with the variables. If A is the number above, `Maple` will compute *3*A-26* if you type *3*A-26;* and it will square A if you type *A^2;*. Suppose you wanted to solve the equations $\begin{array}{c} 21x+73y=46 \\ 51x+31y=17 \end{array}$. You could tell `Maple` *Firstx:=21;* and *Firsty:=73;* and *Firstconst:=46;*, followed by *Secondx:=51;* and *Secondy:=31;* and *Secondconst:=17;* and then:

$$\begin{array}{c} 21x+73y=46 \\ 51x+31y=17 \end{array} \Rightarrow \begin{array}{c} 1x+\frac{73}{21}y=\frac{46}{21} \\ 51x+31y=17 \end{array} \Rightarrow \begin{array}{c} 1x+\frac{73}{21}y=\frac{46}{21} \\ (51-51)x+\left(31-51\left(\frac{73}{21}\right)\right)y=17-51\left(\frac{46}{21}\right) \end{array}$$

So $y = \dfrac{17-51\left(\frac{46}{21}\right)}{\left(31-51\left(\frac{73}{21}\right)\right)} = \frac{663}{1024}$. I had `Maple` do all this work and keep track of it with various variable names. All I did was copy things from the screen. I did <u>no</u> arithmetic!