2010 Solutions

(L) Real Money (1/1)

First off, we can divide words into classes: numerals, tubers, monetary amounts, and functional (that is, grammatical) elements. Given that "huh" appears twice, it can't be a tuber, and must in fact be "one". Therefore "kinsa" is 3, and "papa"/"lumu"/"oqa" are the tubers. (They are, in fact, in their correct order in the English translation, although it's not necessary to make this assumption to solve the puzzle.)

"Ima", occuring only when more than one kind of tuber is mentioned, is "and"; in Quechua this occurs after the conjoined elements rather than in between. This leaves "hayk'apaqmi", which must then mean something like "How much is it for..." (and does).

This leaves figuring out the monetary amounts. "-paqmi" in every answer, making it likely that it's the "it's for" meaning in both the questions and answers. Removing the numeral elements, we are left with "-ral" and "miyun". (Recognizing these as Quechua renderings of the "real" and "medio" mentioned in the introduction, although again not necessary to find the solution, would accelerate finding a solution, since a "miyun" is, as noted, half a "-ral".)

The "search space" through which a solver must trek to find reasonable values of "-ral", "miyun", and the remaining numerals can be lessened considerably by noticing that, from the first translated line, the only value that "pisqaral" can have is either 40, 50, or 60 centavos. If the three types of tubers cost 5, 10, and 15, then no matter which costs which a collection of one, one, and three of them must be one of 40, 50, or 60.

From this point, the solver can proceed to test various hypotheses about the values of pisqa- and -ral. Most of these hypotheses will quickly lead to absurdity when considered against the other sentences: "rals" and "miyuns" worth strange fractions of centavos or even negative centavos, numerals denoting complex fractions like 5/3, etc.

Only one consistent system emerges:

A "ral" is worth 10 centavos and a "miyun" is worth 5.
A "papa" (potato) costs 5 centavos, an "uqa" (oca) costs 10, and a "lumu" (cassava) costs 15.
The numbers are "huh" = 1, "iskay" = 2, "kinsa" = 3, "pisqa" = 5, and "soqta" = 6.

The three questions at the bottom are thus:

Q. ¿Hayk'apaqmi suqta uqa? ("How much is it for six ocas?")
A. Suqtaralpaqmi. ("For 60 cents.")

Q. ¿Hayk'apaqmi iskay lumu, huh papa ima? ("How much is it for 2 cassavas and 1 potato?")
A. Kinsaral miyunpaqmi. ("For 35 cents.")

Q. ¿Hayk'apaqmi huh papa? ("How much is it for one potato?")
A. Miyunpaqmi. ("For 5 cents.")