Sample Program 1.3

Area Of A House

Problem statement. Write an algorithm for calculating the area of a house that consists of several rectangular rooms, and speak the answer. Include line numbers on each line.

Solution.

1   Write the label "total area" on a new piece of paper, and write 0 (zero) under it.
2   Write the label "room counter" on the piece of paper, and write 0 (zero) under it.
3   Jump to the subprogram "Get a room's area" and return with a number.
4   Add the number returned by the subprogram to the number under the label "total area", replacing the number that was there before.
5   Add 1 (one) to the number under the label "room counter", replacing the number that was there before.
6   Ask the user if they want to add another room.
7   If the user answers "yes", loop back to 3.
8   Say out loud "The area of a house with ".
9   Say the number under the label "room counter".
10 Say " room(s) is ".
11 Say the number under the label "total area".
12 Say " square feet.".

Subprogram: "Get a room's area"
1   Write the label "length" on a new piece of paper.
2   Write the label "width" on the piece of paper.
3   Write the label "area" on the piece of paper.
4   Measure the length of a room in decimal feet, and write it under the label "length".
5   Measure the width of a room in decimal feet, and write it under the label "width".
6   On a calculator, type the number under the label "length".
7   On the calculator, press the TIMES key.
8   On the calculator, type the number under the label "width".
9   On the calculator, press the EQUALS key.
10 Write the contents of the calculator's display under the label "area".
11 Return with the number written under the label "area".