

however, allows you to write the program easily. The following shows the standard form for a WHILE WEND loop; WEND stands for WHILE END:

```
WHILE condition
  (statements)
WEND
```

When the program reaches the WHILE command, it evaluates the condition. If false, it jumps to the statement after the WEND. If true, it executes the statements up to the WEND, jumps back to the WHILE, and again evaluates the condition. As long as the condition is true, the program will stay in the loop. The following program uses WHILE loops to solve the problem posed above (input and sum numbers until -1 is entered):

```
10 SUM=0
20 INPUT NUMBER
30 WHILE NUMBER<>-1
40   SUM=SUM+NUMBER
50   INPUT NUMBER
60 WEND
70 PRINT SUM
```

Note that you have to use two INPUT NUMBER commands; once so that the loop can get started, and again in the main body of the loop. This is not unusual for WHILE loops. One of the more common errors with WHILE loops is forgetting to do something to change the condition. For example, if we had forgotten the INPUT on line 50, then NUMBER would never be changed and we would have had an infinite loop. Because of their upper and lower limits, FOR loops do not have that problem. The following is an alternate form of the WHILE loop:

```
WHILE condition DO
  (statements)
WEND
```

Both forms work in the same way. You might prefer the appearance of the latter.

REPEAT UNTIL

The format is:

```
REPEAT
  (statements)
UNTIL condition
```

When the program reaches the REPEAT, it continues past it and executes the following statement(s). When it reaches UNTIL, it evaluates the condition. If true, it leaves the loop and goes to the statement following UNTIL. If false, it jumps back to the statement after REPEAT and goes through the loop again.

REPEAT UNTIL serves about the same role as the WHILE loop, except that the condition is at the end of the loop instead of at the beginning. Therefore, the loop in a REPEAT is always executed at least once, while the statements in a WHILE loop are not executed at all if the initial condition is false.