Answers To Exercises On Page 175

RND Function

```
40 IF R >6 THEN LET R = 1
```

Loop And Average

```
5 FOR L = 1 TO 100
:
80 LET T = T + R
90 NEXT L
100 LET A = T/100
110 PRINT A
120 END
```

Replace With Subroutine

Delete lines 5, 80, 90, 100, and 110 in the solution above. Change lines 10 to 70 to (say) 1000 to 1070. Check that line 40 is as in the RND Function solution above. Then add 1080 RETURN. Incorporate the result into the main program. Change lines 50 and 130 in the main program to read 50 GOSUB 1000 and 130 GOSUB 1000.

INKEYS

```
10 PRINT "TYPE ANY KEY"
20 LET A$ = INKEY$
30 IF A$ ="" THEN GOTO 20
40 PRINT "THE KEY YOU HIT WAS";A$
50 END
```

(On the Spectrum add: 15 IF INKEY$ <>"" THEN GOTO 15)

Timing Loop

```
5 PRINT "HIT THE SPACE-BAR AFTER 10 SECONDS"
10 FOR L = 0 TO 1
20 LET R = R + 1
30 IF INKEY$ = "    " THEN GOTO 60
40 LET L = 0
50 NEXT L
60 PRINT "THE VALUE OF R AFTER 10 SECONDS IS
   ";R
70 END
```

IF...THEN

```
10 GOSUB 1000
20 PRINT "GUESS THE NUMBER"
30 FOR G = 1 TO 5
40 INPUT N
50 IF N >R THEN GOTO 110
60 IF N <R THEN GOTO 130
70 IF N = R THEN GOTO 150
80 NEXT G
90 PRINT "NO MORE GOES. YOU LOSE!"
100 GOTO 500
110 PRINT "YOUR GUESS IS TOO LARGE"
120 GOTO 80
130 PRINT "YOUR GUESS IS TOO SMALL"
140 GOTO 80
150 PRINT "YOU ARE RIGHT,
   CONGRATULATIONS".
500 END
1000 REM **RANDOM SUBROUTINE**
(Insert your subroutine here.)
1020 RETURN
```

Errata

We regret that errors appeared in the Basic Programming course in Issues 5 and 7. Two of the LET statements on page 99, Issue 5, should have read:

```
LET X(5) = 31
LET X(6) = 30
```

On page 100 we should have said:

```
910 LET M = 2
```

On page 137, Issue 7, two lines in the Basic Flavours box, concerning the INSTR command, should be revised to read:

```
525 NEXT P
```

(for Commodore machines and the Oric-1), and:

```
540 FOR P = 1 TO L
```

(for the ZX81 and Spectrum)

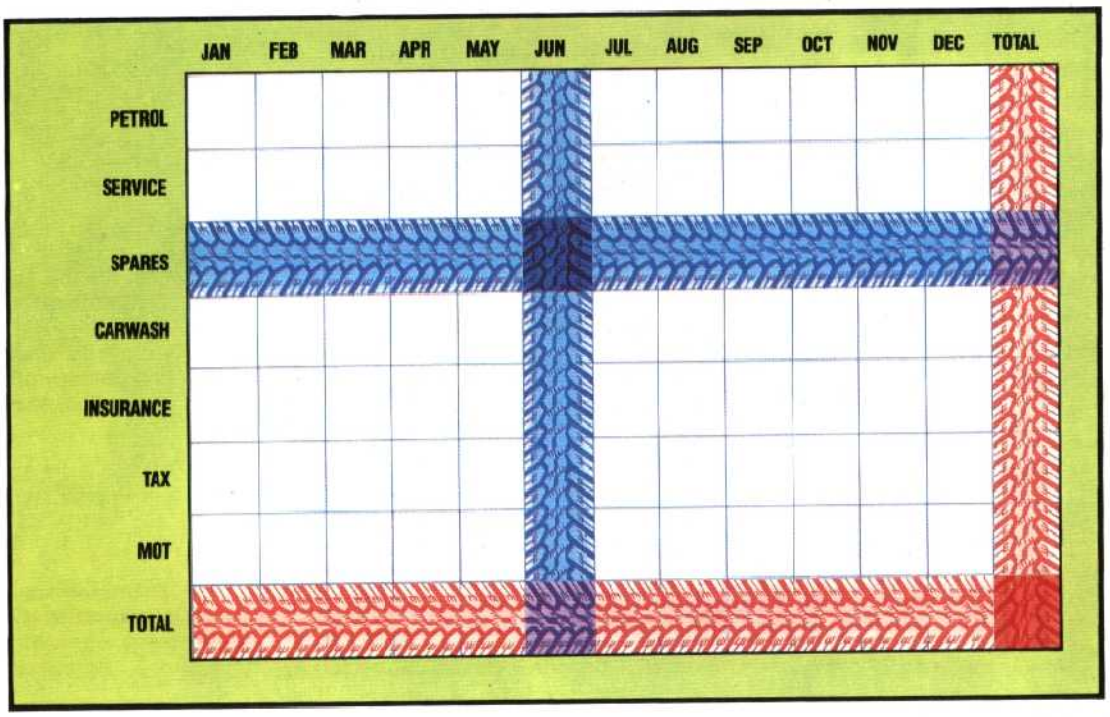
Exercises

■ **Assigning Values** Write a program that assigns values to the elements ('Petrol', 'Service' etc.) of the matrix (see illustration below). Next, write a subroutine that asks for a month, and an expense heading, and prints the contents of the box thus specified. Finally, write a subroutine that finds the sum of each column, and places the result in the bottom box, does the same across the rows, and then calculates the grand total, which it stores in the lower right box.

■ **Bugs** The following program would not run properly and would produce an error message. There are two mistakes. Find them and make appropriate corrections.

●

```
10 DIM A(3,4)
20 FOR R = 1 TO 3
30 FOR C = 1 TO 4
40 READ A(R,C)
50 NEXT C
60 NEXT R
70 FOR X = 1 TO 3
90 FOR Y = 1 TO 4
100 PRINT A(Y,X)
110 NEXT Y
120 NEXT X
130 DATA 2,4,6,8,10,12,14,16,18,20,22
140 END
```



Car Expenses

The picture shows a grid of 8 × 13 squares. The rows represent different elements of the cost of running a car, and the columns represent the different months of the year. Follow the exercise on 'Assigning Values' to calculate the yearly cost of running a car.