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RUN
NUMBER TO CONVERT? 255
255 IN HEX IS 00FF
NUMBER TO CONVERT? -1
-1 IN HEX IS FFFF
NUMBER TO CONVERT? 11
11 IN HEX IS 000B
NUMBER TO CONVERT? ^C
BREAK AT LINE 10
OK

```

BCD and BIN

Many instruments (e.g. digital thermometers and voltmeters) output their measurements in BCD, Binary Coded Decimal. BCD is a representation in which each four bits represent a decimal digit between 0 and 9. Since XYBASIC uses 16-bit integer values, a value can represent 4 BCD digits or 16 binary digits. For example, #1234 represents 4660 if considered as a binary representation, but 1234 if considered as a BCD representation. The functions BCD and BIN are provided to convert between representations. BIN takes a BCD argument and converts it to a binary number, while BCD takes a binary argument and converts it to its BCD representation.

The following program demonstrates BCD and BIN by printing the binary representations of NUM, BCD(NUM) and BIN(NUM).

```

NEW
OK
10 INPUT "NUMBER" NUM
20 PRINT "REP OF"; NUM; "IS";
30 TEMP = NUM
40 GOSUB 200
50 PRINT "BCD OF"; NUM; "IS";
60 TEMP = BCD(NUM)
70 GOSUB 200
80 PRINT "BIN OF"; NUM; "IS";
90 TEMP = BIN(NUM)
100 GOSUB 200
110 GOTO 10
200 REM SUBROUTINE TO PRINT BINARY REPRESENTATION OF TEMP
210 FOR I = 15 TO 0 STEP -1
220 PRINT TEST(TEMP,I);
230 NEXT I
240 PRINT
250 RETURN
RUN
NUMBER? 17
REP OF 17 IS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 0 1
BCD OF 17 IS 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 1 1
BIN OF 17 IS 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 1 1
NUMBER? 25
REP OF 25 IS 0 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 1
BCD OF 25 IS 0 0 0 0 0 0 0 0 0 0 0 1 0 0 1 0 1
BIN OF 25 IS 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0 1 1

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