

```
TYPE TWO NUMBERS? ^C
BREAK AT LINE 10
OK
```

SET and RESET

In a control systems environment you often need to turn on or turn off a particular bit. XYBASIC lets you do so with the SET and RESET functions. The first argument of each is an integer value, the second is the number of the bit you wish to set. Try the following:

```
LET X = SET (0,4)
PRINT X
16
OK
```

Here XYBASIC SET bit 4 (remember that the least significant bit is bit 0) to 1. RESET changes the specified bit to zero instead of one, so now try

```
LET X = RESET (X,4)
PRINT X
0
OK
```

Here XYBASIC changed bit 4 of X while leaving all other bits unchanged. In both SET and RESET the second argument is evaluated mod 16, since the range of bit numbers is 0 through 15.

ROTATE, RSHIFT and LSHIFT

If you need to use only certain bits of an integer's value, you might want to use one of the XYBASIC functions ROTATE (for right rotate), RSHIFT and LSHIFT (for right shift and left shift). These functions rotate or shift their first argument the number of binary places specified by the second. Try this:

```
PRINT ROTATE (1,2)
16384
OK
PRINT LSHIFT (5,3)
40
OK
```

In the first example XYBASIC ROTATED 1 right two places to give 16384 (#4000); in the second XYBASIC shifted 5 (binary &101) left three places to give 40 (&10 1000). The following program uses a binary conversion routine to demonstrate ROTATE, LSHIFT and RSHIFT; to exit type <control-C>.

```
NEW
OK
10 INPUT "NUMBER TO BE SHIFTED" NUM
20 INPUT "NUMBER OF PLACES" P
30 PRINT NUM; " IS ";
40 TEMP = NUM : GOSUB 200
```