Desert Tank Battle

The last major stronghold of Robot forces outside the U.R.S.* is hidden in ancient castle ruins in the middle of the desert. A fleet of desert hovertanks has been sent to destroy it and you are the commander. Your tank controls the five remaining missiles.

You must assess carefully the direction and elevation before you launch each one. Your computer will ask you for a direction and an elevation angle between −90° (extreme left) and +90° (extreme right) and an elevation angle between 0° (along the ground) and 90° (straight up in the air). The elevation determines the distance the missile will travel.

Is your aim good enough to destroy the robot stronghold?

How the program works

```
★■▲●     10 PRINT "DESERT TANK BATTLE"

★■▲●20 LET T=INT(RND*181)-90

★■▲● 30 LET D=RND

         40 FOR G=1 TO 5
         50 PRINT "DIRECTION (-90 TO 90) ?"
         60 INPUT T1
         70 PRINT "ELEVATION (0 TO 90) ?"
         80 INPUT B

         90 LET D1=SIN(2*(B/180*3.1416))

        100 IF ABS(T-T1)<2 AND ABS(D-D1)<.05 THEN GOTO 220

        110 PRINT "MISSILE LANDED "
        120 IF T1>T THEN PRINT "TO THE LEFT "; 
        130 IF T1<T THEN PRINT "TO THE RIGHT ";

        140 IF ABS(D1-D).05 AND T1>T THEN PRINT "AND ";

        150 IF D-D1>.05 THEN PRINT "NOT FAR ENOUGH ";
        160 IF D1-D>.05 THEN PRINT "TOO FAR";
        170 PRINT
        180 NEXT G
        190 PRINT "DISASTER - YOU FAILED"
        200 PRINT "RETREAT IN DISGRACE"
        210 STOP
        220 PRINT "*KABOOOMMM*"
        230 PRINT "YOU'VE DONE IT"
        240 STOP
```

This selects a whole number between −90 and 90 for the direction.

This selects a number between 0 and 1 for the distance of the castle from you.

Get your guesses and puts them in A and B.

Uses your elevation angle to calculate the distance your missile went. (Answer will be between 0 and 1).

If your direction and your distance within 2 degrees were within 0.05, then you have hit the castle. Program jumps to line 220 to tell you so.

Compares your direction angle with the number chosen in line 20 and prints an appropriate message.

*Decides whether to print "and" by comparing the distance your missile travelled with the number chosen in line 30.

Prints a message if your shot was too long or short.

Prints if you lose.

Prints if you lose.

Prints if you win.

ABS takes the "absolute" value of a number, which means it ignores + or − signs.

A semi-colon at the end of a print statement tells the computer not to go to a new line for the next item to be printed.

The above listing will work on a ZX81. For other computers, make the changes below.

```
★▲●20 LET T=INT(RND(1)*181)-90
■20 LET T=INT(RND(0)*181)-90
★▲●30 LET D=RND(1)
■30 LET D=RND(0)
```

Only the ZX81 and Spectrum need LET. You can leave it out for the other computers.

Puzzle corner

Can you work out how to add the possibility of the robots seeing you and shooting at you before your five goes are up?