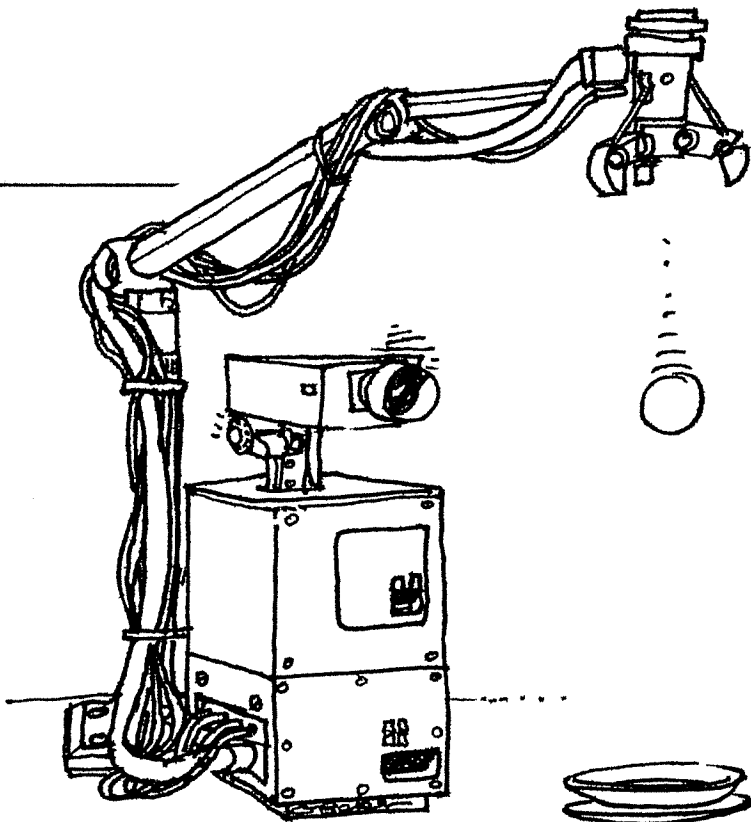


Bounce

This program plots a bouncing ball. Most computer plots run along the paper in the terminal (top to bottom); however, this plot is drawn horizontally on the paper (left to right).

You may specify the initial velocity of the ball and the coefficient of elasticity of the ball (a superball is about 0.85 — other balls are much less). You also specify the time increment to be used in "strobing" the flight of the ball. In other words, it is as though the ball is thrown up in a darkened room and you flash a light at fixed time intervals and photograph the progress of the ball.

The program was originally written by Val Skalabrin while he was at DEC.



BOUNCE
CREATIVE COMPUTING MORRISTOWN, NEW JERSEY

THIS SIMULATION LETS YOU SPECIFY THE INITIAL VELOCITY OF A BALL THROWN STRAIGHT UP, AND THE COEFFICIENT OF ELASTICITY OF THE BALL. PLEASE USE A DECIMAL FRACTION COEFFICIENCY (LESS THAN 1).

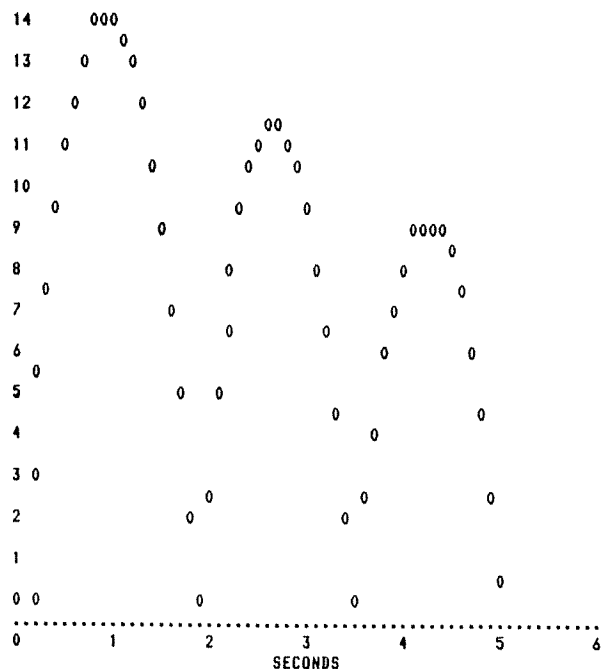
YOU ALSO SPECIFY THE TIME INCREMENT TO BE USED IN 'STROBING' THE BALL'S FLIGHT (TRY .1 INITIALLY).

TIME INCREMENT (SEC)? .1

VELOCITY (FPS)? 30

COEFFICIENT? .9

FEET



```

10 PRINT TAB(33);"BOUNCE"
20 PRINT TAB(15);"CREATIVE COMPUTING MORRISTOWN, NEW JERSEY"
30 PRINT:PRINT:PRINT
90 DIM T(20)
100 PRINT "THIS SIMULATION LETS YOU SPECIFY THE INITIAL VELOCITY"
110 PRINT "OF A BALL THROWN STRAIGHT UP, AND THE COEFFICIENT OF"
120 PRINT "ELASTICITY OF THE BALL. PLEASE USE A DECIMAL FRACTION"
130 PRINT "COEFFICIENCY (LESS THAN 1)."
131 PRINT
132 PRINT "YOU ALSO SPECIFY THE TIME INCREMENT TO BE USED IN"
133 PRINT "'STROBING' THE BALL'S FLIGHT (TRY .1 INITIALLY)."
134 PRINT
135 INPUT "TIME INCREMENT (SEC)";S2
140 PRINT
150 INPUT "VELOCITY (FPS)";V
160 PRINT
170 INPUT "COEFFICIENT";C
180 PRINT
182 PRINT "FEET"
184 PRINT
186 S1=INT(70/(V/(16*S2)))
190 FOR I=1 TO S1
200 T(I)=V*C^(I-1)/16
210 NEXT I
220 FOR H=INT(-16*(V/32)^2+V^2/32+.5) TO 0 STEP -.5
221 IF INT(H)<>H THEN 225
222 PRINT H;
225 L=0
230 FOR I=1 TO S1
240 FOR T=0 TO T(I) STEP S2
245 L=L+S2
250 IF ABS(H-((.5*(-32)*T^2+V*C^(I-1)*T))>.25 THEN 270
260 PRINT TAB(L/S2);"0";
270 NEXT T
275 T=T(I+1)/2
276 IF -16*T^2+V*C^(I-1)*T<H THEN 290
280 NEXT I
290 PRINT
300 NEXT H
310 PRINT TAB(1);
320 FOR I=1 TO INT(L+1)/S2+1
330 PRINT ".";
340 NEXT I
350 PRINT
355 PRINT "0";
360 FOR I=1 TO INT(L+.9995)
380 PRINT TAB(INT(I/S2));I;
390 NEXT I
400 PRINT
410 PRINT TAB(INT(L+1)/(2*S2)-2);"SECONDS"
420 PRINT
430 GOTO 135
440 END

```