"When Will We Ever Use This?"

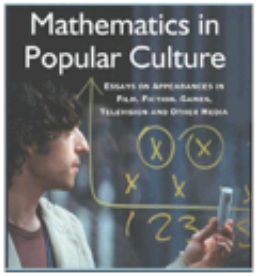
by Scott Oliver, AE Stevenson HS (retired)
soliver@d125.org

Can you solve this code?: (it is a Caesar cypher (shift of letters of alphabet))

YVILYA SHUNKVU HDVRL ZSVDSF. H ALSLWOVUL DHZ YPUNPUN PU AOL KHYRULZZ - H APUUF, BUMHTPSPHY YPUN.

Or this one? (Caesar Square)

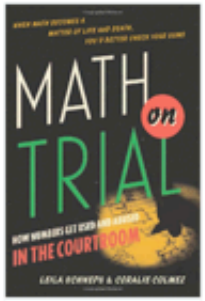
YCAUEARASESRASQE

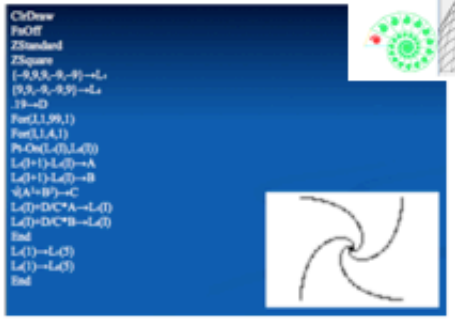


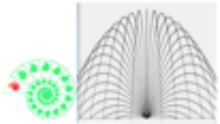
How many movies/tv shows that contain references to math can you think of ?

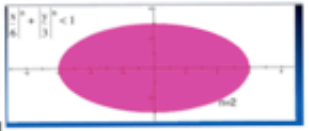
	1	0	0	0	0	0	0	0	0	0
	1	1	0	0	0	0	0	0	0	0
	1	2	1	0	0	0	0	0	0	0
	1	3	3	1	0	0	0	0	0	0
	1	4	6	4	1	0	0	0	0	0
	1	5	10	10	5	1	0	0	0	0
	1	6	15	20	15	6	1	0	0	0
	1	7	21	35	35	21	7	1	0	0
	1	8	28	56	70	56	28	8	1	0
	1	9	36	84	126	126	84	36	9	1
	1	10	45	120	210	252	210	120	45	10

n	P(n)	Perrins	Sequence
0	3	13	39
1	0	14	51
2	2	15	68
3	3	16	90
4	2	17	119
5	5	18	158
6	5	19	209
7	7	20	
8	10	21	
9	12	22	
10	17	23	
11	22	24	







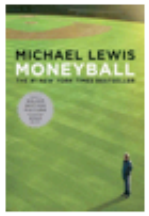
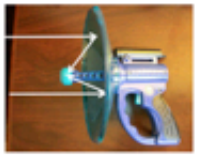
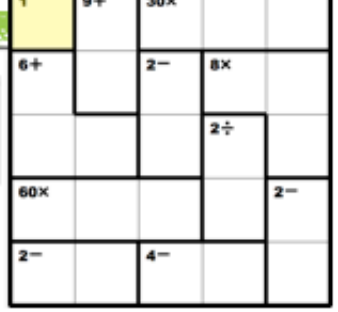
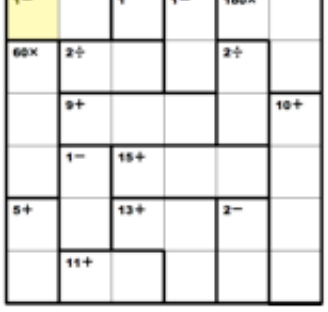


```
REM True BASIC program to illustrate planetary movement
REM Modified from JAVA program written by Kelly Brown
SET WINDOW -100,100,-100,100    ! puts graphics origin in center of screen
BOX CIRCLE -3,3,-5,5            ! Draw Sun
OPTION ANGLE degrees            ! uses degrees - not radians
LET e=.6                        ! eccentricity of ellipse
LET dt=.1                       ! delta time
LET ctr =0
DO
  LET radius= (1-e^2)/(1-e*cos(ang))  ! polar form of ellipse
  LET deltaang= 2*pi*sqr(1-e^2)/radius^2*dt   ! delta ang to match gravitational effects
  LET tim=tim+dt
  LET ctr=ctr+1
  ! IF ang <360 and mod(ctr,40)=0 then PLOT LINES: 0,0;px,py    ! plots equal areas
  LET ang=ang+deltaang
  BOX CLEAR px-2,px+2,py-2,py+2  ! erase old planet
  LET px= 60*radius*cos(ang)
  LET py= 60*radius*sin(ang)
  BOX CIRCLE px-1,px+1,py-1,py+1     ! draw new planet
  PAUSE .001
LOOP until key input            ! loops until a key is pushed
END
```

```
ParabFold
AxesOff
FnOff
PlotsOff
-10 -> Xmin
10 -> Xmax
FnOff
ClrDraw
Prompt F
-F-1 -> Ymin
F+7 -> Ymax
Circle(0,F,.2)
Line(-20,-F,20,-F)
Pause
For(X,-6,6,1.0)
-F -> Y
If X=0
Then
500 -> M
Else
-F/X -> M
End
-1/M -> N
X/2 -> P
0 -> Q
-150 -> R
N(R-P)+Q -> S
150 -> T
N(T-P)+Q -> U
Line(R,S,T,U)
End
```

```
CircleFold
AxesOff
FnOff
PlotsOff
ZStandard
ZSquare
ClrDraw
Circle(0,0,8)
Degree
Prompt F
Circle(F,0,.2)
Circle(0,0,.2)
For(D,0,360,10)
cos(D)*8 -> X
sin(D)*8 -> Y
If X=F
Then
500 -> M
Else
Y/(X-F) -> M
End
If M=0
Then
500 -> N
Else
-1/M -> N
End
(X+F)/2 -> P
(Y+0)/2 -> Q
-150 -> R
N(R-P)+Q -> S
150 -> T
N(T-P)+Q -> U
Line(R,S,T,U)
End
```

```
SUNFLOWR
ClrDraw
FnOff
PlotsOff
AxesOff
Degree
ZStandard
ZSquare
ClrHome
Input "ANG INC?",J
Input "RAD INC?",J
0->A
.1->R
For(B,1,450)
Pt-On(Rcos(A),Rsin(A))
A+J->A
R+J->R
End
```

5	3			7				
6			1	9	5			
	9	8					6	
8				6				3
4			8		3			1
7				2				6
	6					2	8	
			4	1	9			5
				8			7	9

http://en.wikipedia.org/wiki/Sudoku