1.1 Multiple Representations

PRE-CALCULUS

VANG

Verbally
Algebraically
Numerically
Graphically

VERBALLY	ALGEBRAICALLY
Bob has 3 cakes and bakes 4 cakes every 2 hours. y x	$y = 3 + \frac{4}{2}x$ $y = 2x + 3$

NUMERICALLY	GRAPHICALLY

NUMERICALLY

time hours	# of Cakes
0	3
1	5
2	7
3	9
4	11

GRAPHICALLY — (0,3)

VERBALLY	ALGEBRAICALLY
The area of a circle is a function of its radius	$A(r) = \pi r^2$

NUMERICALLY	GRAPHICALLY

NUMERICALLY

in radius	in² Area
-2	4π
-1	π
0	0
1	π
2	4π

GRAPHICALLY — -4π

Function Notation

$$f(x) = 9 - 4x$$

a. $f(-3) = 9 - 4(-3)$
$= 9 + 12$
$f(-3) = 21$

b. $f(x) = 10$
$10 = 9 - 4x$
$1 = -4x$
$-\frac{1}{4} = x$

c. $f(h) = 9 - 4(h)$
$= 9 - 4h$

d. $f(x + 2) = 9 - 4(x+2)$
$= 9 - 4x - 8$
$f(x+2) = 1 - 4x$

WINDOW
Xmin=0
Xmax=7
Xscl=1
Ymin=0
Ymax=70
Yscl=10
Xres=1

Y1=1/3X^3-2X2-2X+50

X=3 _____ Y=35 _____

Y1=1/3X^3-2X2-2X+50

X=2.0851064 _Y=40.156234

Y1=1/3X^3-2X2-2X+50

X=4.4680851 _Y=30.869552

Mr. Bean enters a 7 day Pokémon competition. The function below models Mr. Bean's total cards over the tournament. $C(t) = \frac{1}{3}t^3 - 2t^2 - 2t + 50$.

t = time in days

C = # of Pokemon Cards

What does $C(3)$ mean? Find it. *C(3)=35*

How many cards does he have on day 3? 35 cards

What does $C(t) = 40$ mean? Estimate it.

When does he have 40 cards? Day 2.085 and 6.181.

What does the y-intercept mean?

How many cards did he start with? 50 cards.

What is the lowest amount of cards that Mr. Bean had?

about 30.870

X	Y1
0	50
1	46.333
2	40.667
3	35
4	31.333
5	31.667
6	38

X=0

X	Y1	
201	2.63E6	
47	30146	
26.875	5022	
-25	-6358	

X=

CALCULATOR
ZOOM

6: ZStandard = *10 units in all directions*

0: ZoomFit = *desperation*

TBLSET (2nd WINDOW)

TI-84 Plus Silver Edition
TEXAS INSTRUMENTS

TABLE SETUP
TblStart=0
ΔTbl=1
Indpnt: **Auto** Ask
Depend: **Auto** Ask

STAT PLOT F1   TBLSET F2   FORMAT F3   CALC F4   TABLE F5
Y=   WINDOW   ZOOM   TRACE   GRAPH
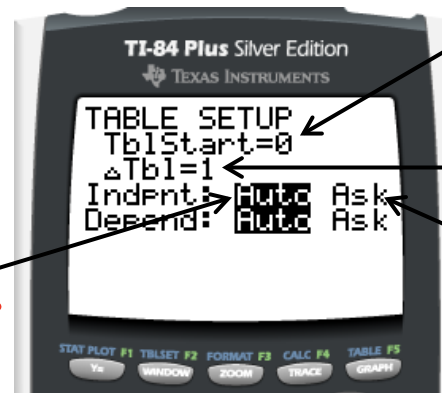
where table begins

what x counts by

You type in x-values

Calculator puts in x-values

Y1=-.02X^4+19X+180

X=12 _____ Y=-6.72

Mr. Brust has a one day layover in Vegas. He decides to gamble continuously for that time period. The following function represents his total money over that day where t is measured in hours.

$$B(t) = -0.02t^4 + 19t + 180$$

B = $
t = hours

What does $B(12)$ mean? Find it. *B(12)=-6.72*

How much money does he have at hour 12? He owes $6.72

What does $B(t) = 80$ mean? Estimate it.

At what hour will he have $80? 11.180 hour

What does the y-intercept mean? What does the x-intercept mean?

How much money did he start with?   *When will he lose all his money?*

What is the most money that Mr. Brust had?

$268.23

SUMMARY:

Y1=-.02X^4+19X+180

X=11.234043 _Y=74.89927

Y1=-.02X^4+19X+180 $268.23

X=6.1276596 _Y=268.22817