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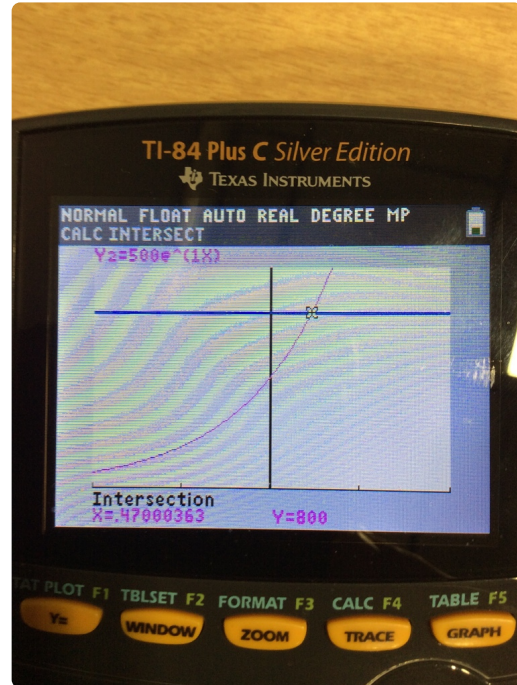$$\text{⑥} \quad y = Ce^{Kt}$$
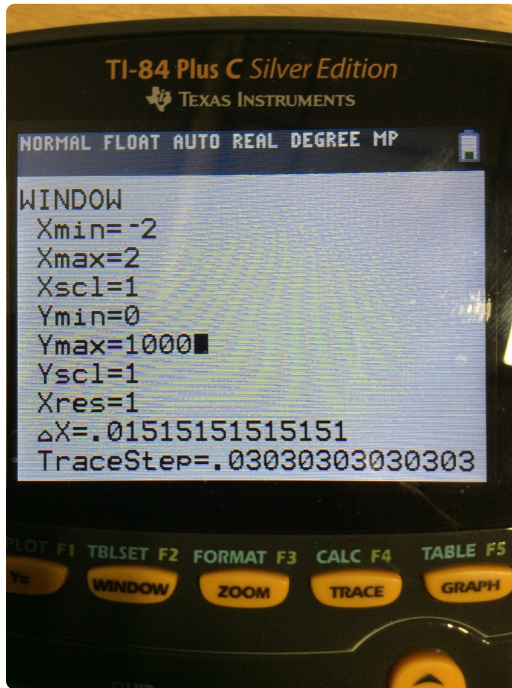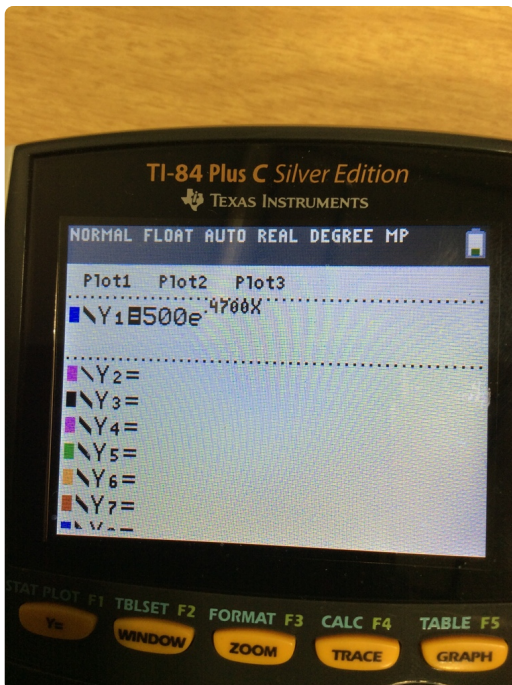$$800 = 500e^{1K}$$

$$C = 500$$
$$y = 800$$
$$t = 1$$

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WINDOW
Xmin=-2
Xmax=2
Xscl=1
Ymin=0
Ymax=1000
Yscl=1
Xres=1
ΔX=.01515151515151
TraceStep=.03030303030303

CALC INTERSECT
Y2=500e^(1X)
Intersection
X=.47000363   Y=800

Plot1 Plot2 Plot3
Y1=500e^.4700X
Y2=
Y3=
Y4=
Y5=
Y6=
Y7=

$$y = 500e^{.4700t}$$

5243 bacteria

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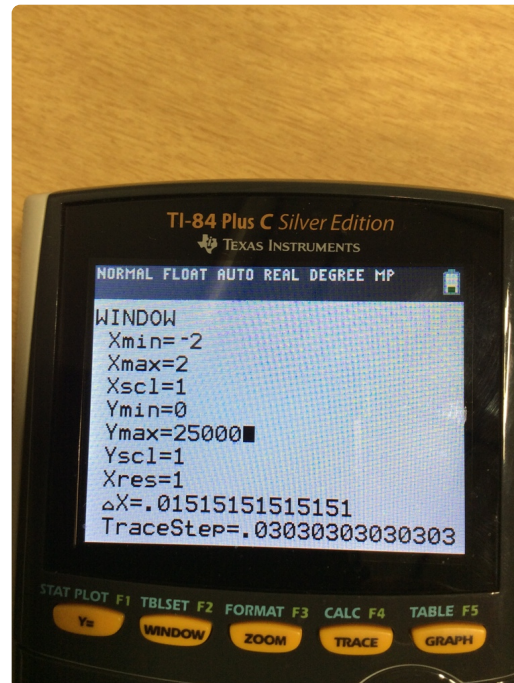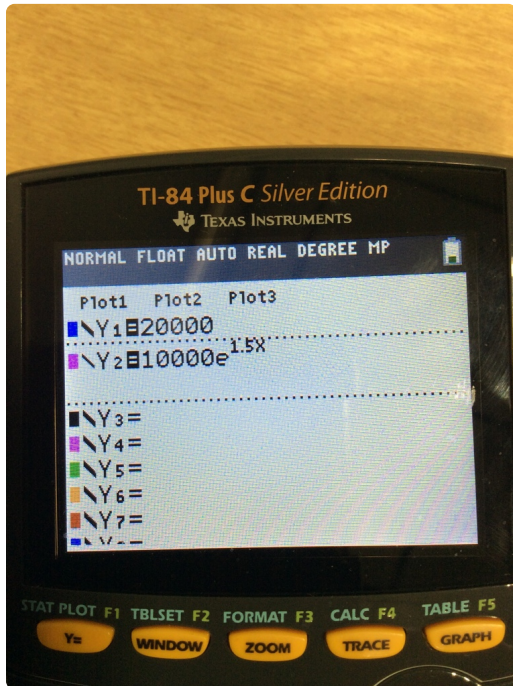**7.9 hours**

7

$$y = Ce^{Kt}$$

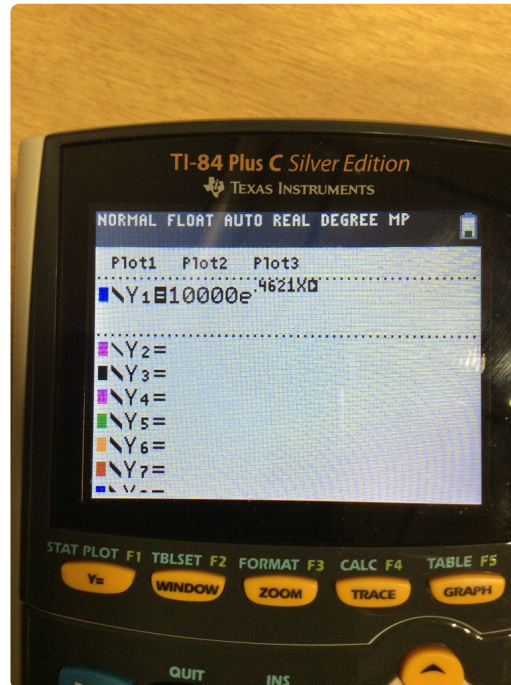$$C = 10,000$$

$$y = 20,000$$

$$t = 1.5 \text{ years}$$
$$(18 \text{ months})$$

$$20000 = 10000\, e^{1.5k}$$

6. Bacterial Growth A culture of bacteria obeys the law of uninhibited growth. If 500 bacteria are present initially and there are 800 after 1 hour, how many will be present in the culture after 5 hours? How long is it until there are 20,000 bacteria?

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TEXAS INSTRUMENTS

NORMAL FLOAT AUTO REAL DEGREE MP

Plot1 Plot2 Plot3
\Y1=20000
\Y2=10000e^1.5X
\Y3=
\Y4=
\Y5=
\Y6=
\Y7=

TI-84 Plus C Silver Edition
TEXAS INSTRUMENTS

NORMAL FLOAT AUTO REAL DEGREE MP

WINDOW
Xmin=-2
Xmax=2
Xscl=1
Ymin=0
Ymax=25000
Yscl=1
Xres=1
ΔX=.01515151515151
TraceStep=.03030303030303

$$y = 10000e^{.4621t}$$

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TEXAS INSTRUMENTS

NORMAL FLOAT AUTO REAL DEGREE MP
CALC INTERSECT
Y2=10000e^(1.5X)

Intersection
X=.46209812   Y=20000

AT PLOT F1 TBLSET F2 FORMAT F3 CALC F4 TABLE
Y=   WINDOW

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TEXAS INSTRUMENTS

NORMAL FLOAT AUTO REAL DEGREE MP

Plot1 Plot2 Plot3
Y1=10000e^.4621X

Y2=
Y3=
Y4=
Y5=
Y6=
Y7=

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

QUIT   INS
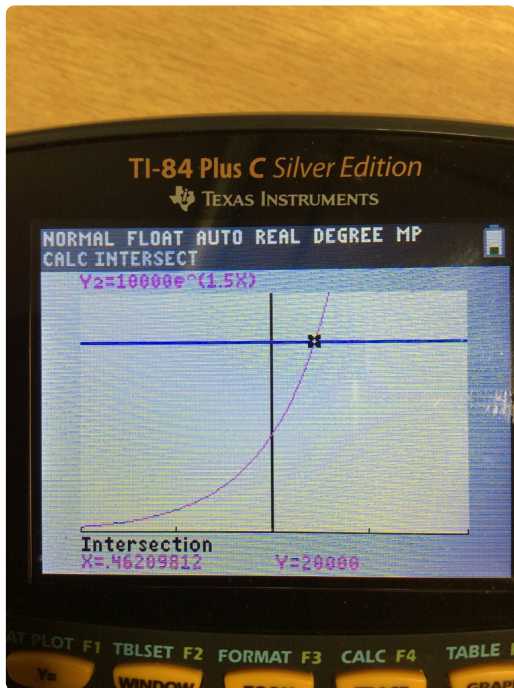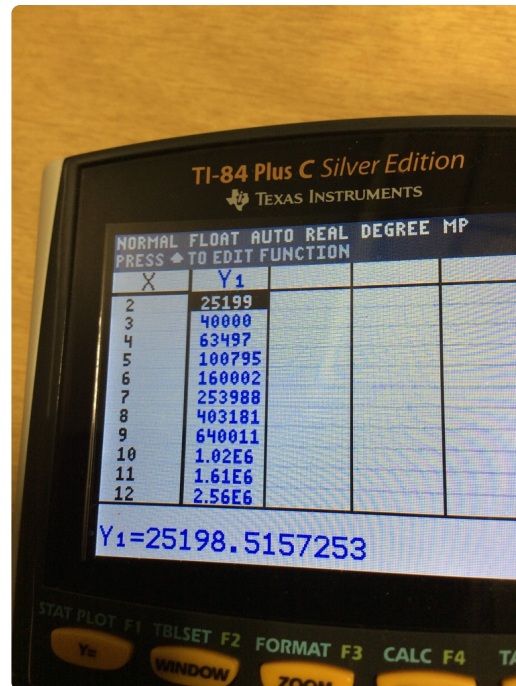
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25,199

TI-84 Plus C Silver Edition
TEXAS INSTRUMENTS

NORMAL FLOAT AUTO REAL DEGREE MP
PRESS ◆ TO EDIT FUNCTION

X	Y1
2	25199
3	40000
4	63497
5	100795
6	160002
7	253988
8	403181
9	640011
10	1.02E6
11	1.61E6
12	2.56E6

Y1=25198.5157253

STAT PLOT F1 TBLSET F2 FORMAT F3 CALC F4 TA
Y=   WINDOW   ZOOM

8

$$y = Ce^{Kt}$$

$$C = 900,000$$

$$y = 800,000$$

$$t = 2$$

Starting Point

1995

6. **Bacterial Growth** A culture of bacteria obeys the law of uninhibited growth. If 500 bacteria are present initially and there are 800 after 1 hour, how many will be present in the culture after 5 hours? How long is it until there are 20,000 bacteria?

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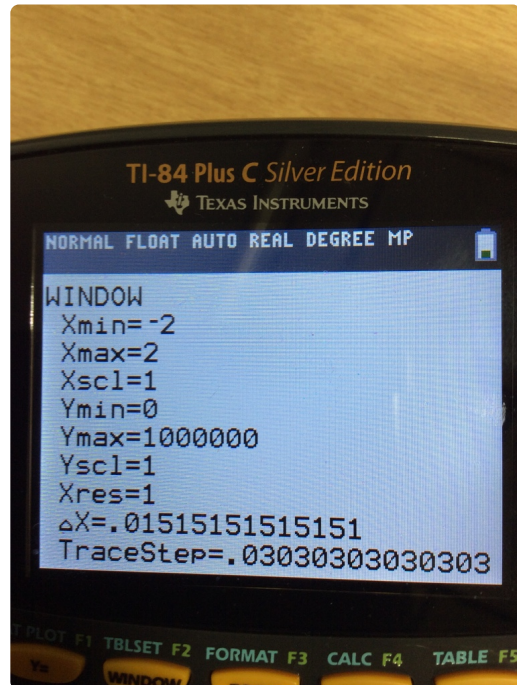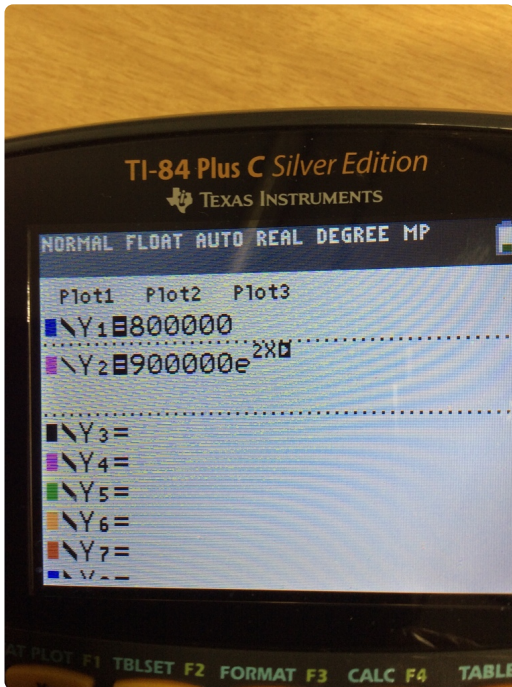

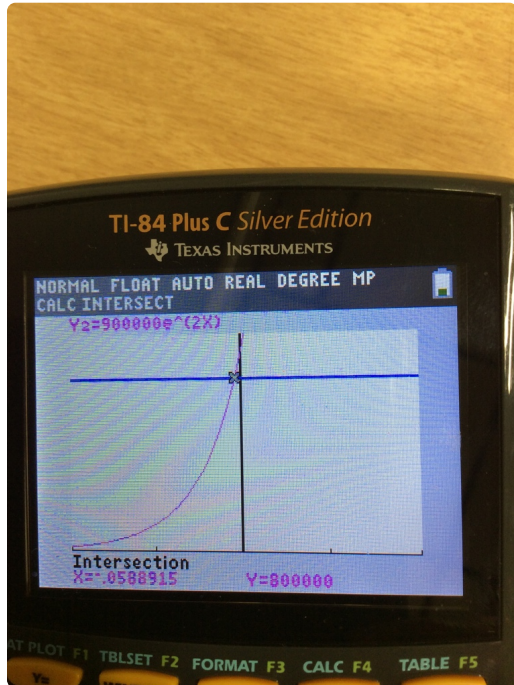TI-84 Plus C Silver Edition
TEXAS INSTRUMENTS

NORMAL FLOAT AUTO REAL DEGREE MP

```
Plot1  Plot2  Plot3
\Y1 = 800000
\Y2 = 900000e^(2X)
\Y3 =
\Y4 =
\Y5 =
\Y6 =
\Y7 =
```

STAT PLOT F1 TBLSET F2 FORMAT F3 CALC F4 TABLE

TI-84 Plus C Silver Edition
TEXAS INSTRUMENTS

NORMAL FLOAT AUTO REAL DEGREE MP

```
WINDOW
 Xmin=-2
 Xmax=2
 Xscl=1
 Ymin=0
 Ymax=1000000
 Yscl=1
 Xres=1
 ΔX=.01515151515151
 TraceStep=.03030303030303
```

STAT PLOT F1 TBLSET F2 FORMAT F3 CALC F4 TABLE F5

EQUATION

$$y = 900{,}000e^{-.0589t}$$

NORMAL FLOAT AUTO REAL DEGREE MP
CALC INTERSECT
Y2=900000e^(2X)

Intersection
X=-.0588915   Y=800000

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8. **Population Growth**   The population of a midwestern city follows an exponential model. If the population decreased from 900,000 to 800,000 from 1995 to 1997, what will the population be in 1999?

Starting point
1995

$t = 4$

711,087

NORMAL FLOAT AUTO REAL DEGREE MP
PRESS ◆ TO EDIT FUNCTION

X	Y1
1	848521
2	799986
3	754228
4	711087
5	670414
6	632067
7	595913
8	561827
9	529692
10	499394
11	470829

Y1=711086.984454