Free Falling Bodies Equation and Graph
Uniform Acceleration Equation

$$Y = Y0 + V0*t + 0.5*a*t^2$$

Ranges have been protected!
You may unprotect them using /SGPD

Incremental (t) =	0.200s
Init. Height (Yo) =	80.000m
Init. Veloc. (Vo) =	30.000m/s
Accelaration (a) =	-9.800m/s^2
Max Height @ t =	3.061s
Max Height Reached =	125.918m

Data points (Calculated Using Above Initial Conditions)

t (s)	y (m)
0.000	80
0.200	85.804
0.400	91.216
0.600	96.236
0.800	100.864
1.000	105.1
1.200	108.944
1.400	112.396
1.600	115.456
1.800	118.124
2.000	120.4
2.200	122.284
2.400	123.776
2.600	124.876
2.800	125.584
3.000	125.9
3.200	125.824
3.400	125.356
3.600	124.496

AS-EASY-AS Template

(Press F10 For Graph)
(Press Alt-E To Extend Range
(Press Alt-R to Reset Range)
(Press Alt-S to Set Extend Ste
* Each Extension Adds 10 Points

(Delta Time for Data Points)
(Initial Height)
(Initial Velocity)
(Acceleration)
(Reached Max Y at this time)
(Max Height Reached)

```
/sgpd{invalue "Enter # of Poi
{if c8>25}{let c8,25}
{let d37,+"{dn "&c8&"}"}{u

/sgpd{goto a22}~/re.{end}{d
{Let a22,0}
{let B22,+"+$B$11+($B$12*
{let A23,+"+A22+$B$10"}
{goto}b22~/C~{dn}~~
{goto}a23~/Ca23..b23~A24...
/grxa22..a62~ab22..b62~qq~
{update}{home}~/sgpe

/sgpd{goto a22}{end}{dn}
/c{rt}~{dn}.
{dn 20}
~/grx{end}{dn}~a{end}{dn}
{graph}{home}~/sgpe
```

3.800	123.244
4.000	121.6
4.200	119.564
4.400	117.136
4.600	114.316
4.800	111.104
5.000	107.5
5.200	103.504
5.400	99.116
5.600	94.336
5.800	89.164
6.000	83.6
6.200	77.644
6.400	71.296
6.600	64.556
6.800	57.424
7.000	49.9
7.200	41.984
7.400	33.676
7.600	24.976
7.800	15.884
8.000	6.4

=

:)

p)
s
=
10

=

=
nts per Extension Up to 25):",c8}~

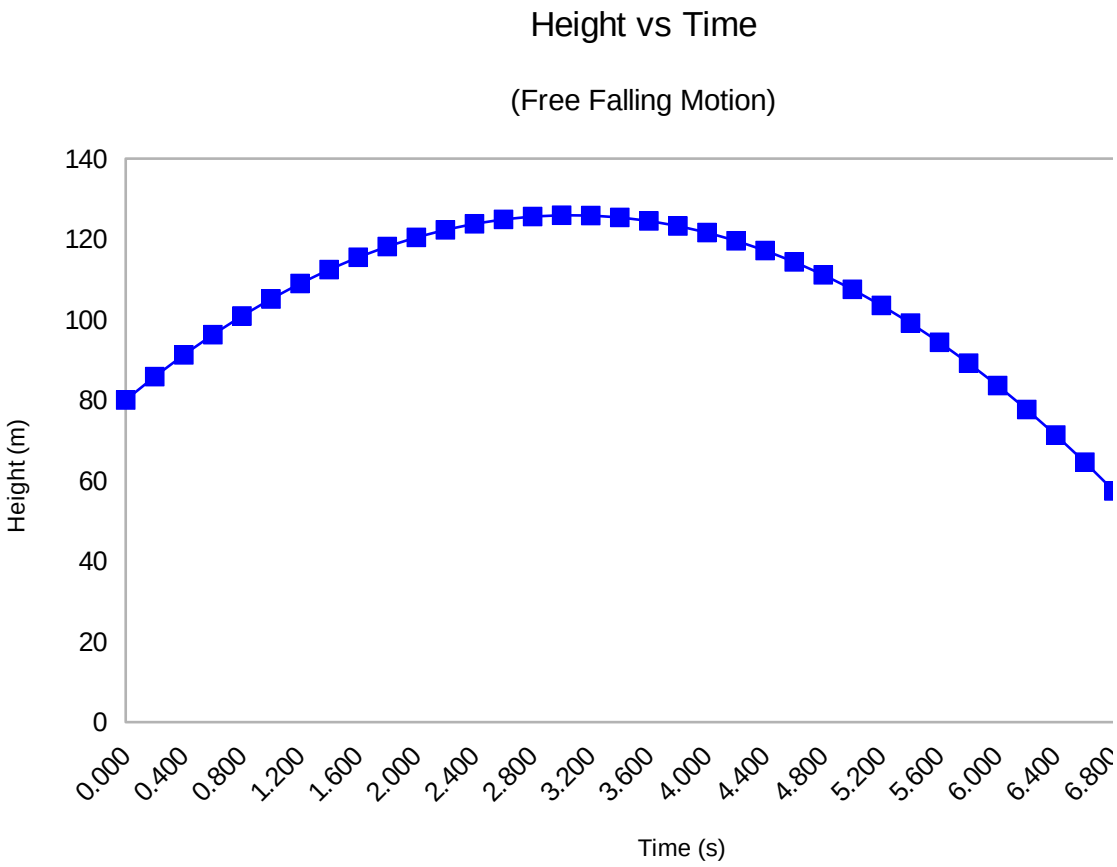
pdate} {home}~/sgpe

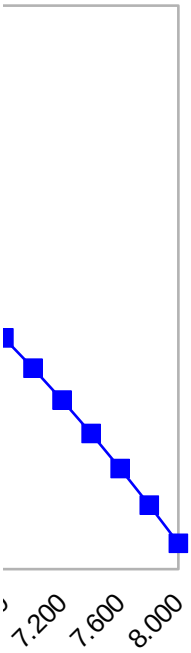
n} {rt}~

A22)+(0.5*$B$13*A22*A22)"}

A62~

~qq~


Height vs Time
(Free Falling Motion)
Height (m)
140
120
100
80
60
40
20
0
0.000
0.400
0.800
1.200
1.600
2.000
2.400
2.800
3.200
3.600
4.000
4.400
4.800
5.200
5.600
6.000
6.400
6.800
Time (s)


7.200
7.600
8.000