

L6 AS Use of Maths: Use of Calculator Table Function

1. The decline in the population of a species of birds in a remote site is modelled by the formula

$$P = 4200 - 1000t$$

Where P is the population and t is the time in months. Use the table function of your calculator to complete the table below.

t	P
0	4200
2	
4	
6	
8	
10	
12	
14	
16	

Use this data to plot the curve on graph paper. Choose your axes carefully.

- Write down the initial population of birds
- Find the time taken for the population to decrease by 1000.
- Find the time taken for the population to decrease by 60%.

2. The formula to convert °F to °C is

$$F = 1.8C + 32$$

- Use the table function to complete the following table of values

°C	°F
-30	
-20	
-10	
0	
10	
20	
30	
40	

b) Use this data to plot the line on graph paper. Choose your axes carefully.
An approximate rule to convert $^{\circ}\text{C}$ to $^{\circ}\text{F}$ is

“Double it and add 30”. (For example 20°C is roughly 70°F).

- c) Express this rule as a formula giving F in terms of C.
- d) Plot this straight line on the graph from part (b).
- e) Use the simultaneous equation solver to find the temperature for which the approximate rule is exact.
- f) For what range of values is the approximate rule an overestimate.
- g) Find the error when $C = 30^{\circ}$.
- h) Find the percentage error when $C = 20^{\circ}$.
- i) Find the temperature whose value in F and C is the same.
Hint: Substitute $C = F$ in the original formula.