30th July

1 2

1. Take the **natural log** (ln) of both sides of these equations:
   a. $y = ne^{x}$
   b. $A = A_0 e^{nx}$
   c. $D = D_0 e^{-nx}$
   d. $D = D_0 e^{-kn}$

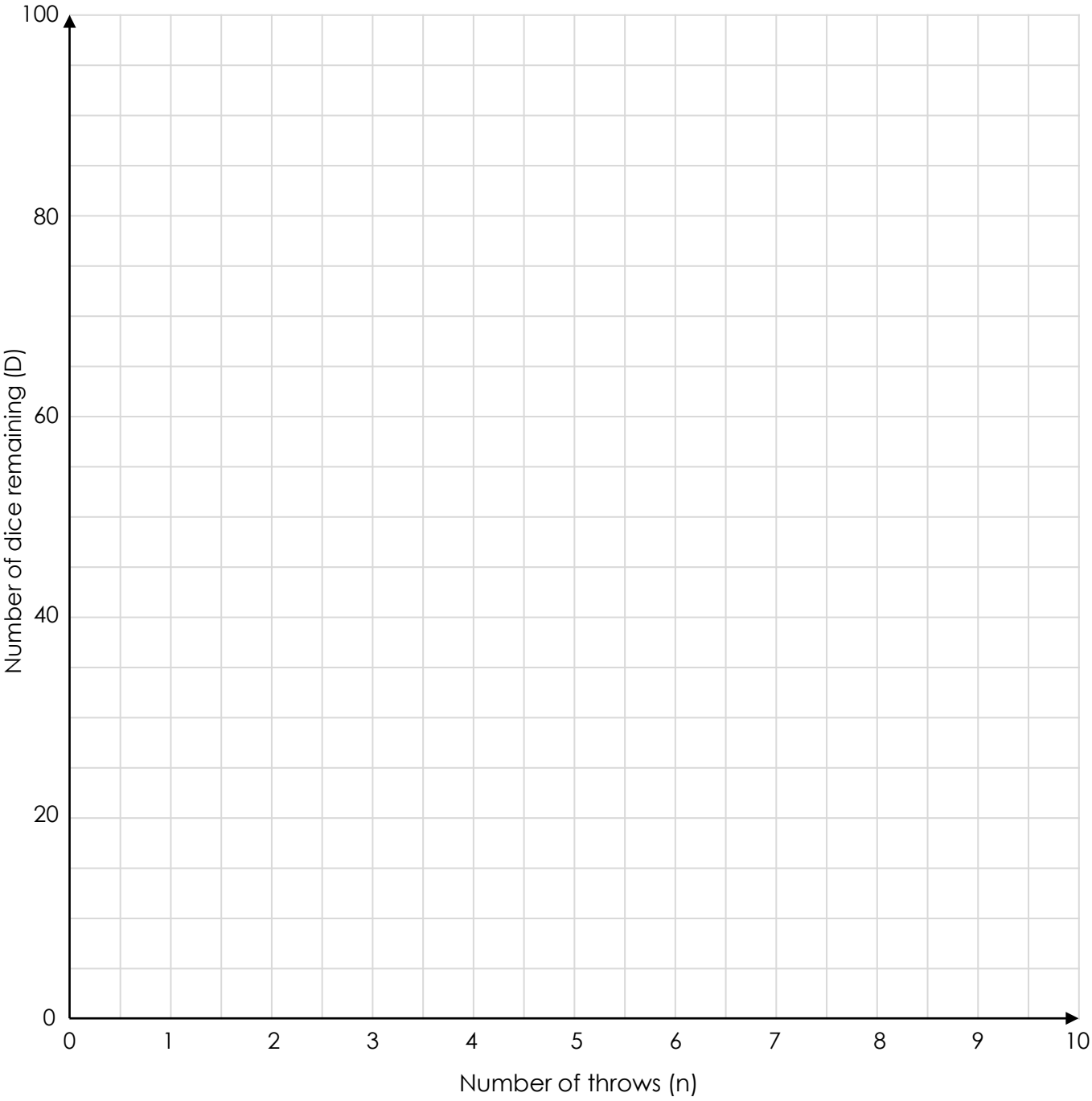
2. 100 dice were thrown into a container. Those that landed with a 1 or a 2 showing were removed. The remaining dice were thrown again and so on. G

   The following data was recorded:

Number of throws (n)	Number of dice remaining (D)
0	100
1	64
2	46
3	29
4	19
5	14
6	8
7	5
8	4
9	3
10	2

   a. **Plot** the data on the graph and draw a **line of best fit**
   b. Use your graph to estimate the **half-life**, giving it as a number to one decimal place

30th July


100
80
60
40
20
0
Number of dice remaining (D)
0
1
2
3
4
5
6
7
8
9
10
Number of throws (n)