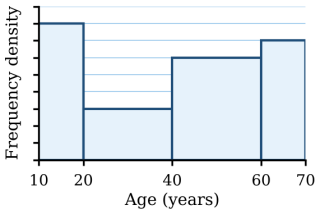
Day 200	S Tier 10-a-day

1 (a) Write 686 and 1225 as products of prime factors.
(b) Find the HCF and the LCM of 686 and 1225.
Give your answers as numbers.

2 $f(x) = \frac{-4x + 1}{3x + 1}$
(a) Find $f^{-1}(x)$.
(b) Find the value of $f^{-1}(-1)$.

3 Nia puts £2,500 in a savings account.
Compound interest is paid at 2% in year 1, 6% in year 2 and 1% in year 3.
Work out the amount in the account at the end of year 3.
Give your answer to the nearest penny.
(Calculator)

4 The histogram shows the ages of visitors to a museum.
280 of them had an age between 60 and 70 years.
(a) How many had an age between 40 and 60 years?
(b) How many visitors are there in total?

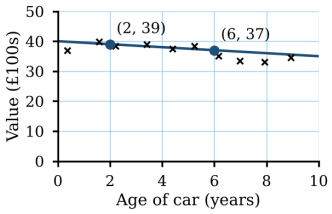


5 Two shapes are mathematically similar.
The smaller has height 12 cm and area 20 cm^2.
The larger has area 45 cm^2.
Work out the height of the larger shape.

Day 200	S Tier 10-a-day

6 Solve $2 \sin x° - 3 = -5$ for $0 \leq x \leq 360$

7 The scatter graph shows age of car (x) and value (y).
The line of best fit passes through (2, 39) and (6, 37).
(a) Find its equation in the form $y = mx + c$.
(b) Explain what its gradient tells you.



8 A teacher's salary is increased by 8% in one year.
The next year it is increased by 25%.
The teacher's salary is now £51,300 a year.
Work out the teacher's salary before the first change.

9 The vectors $\begin{pmatrix} k \\ 24 \end{pmatrix}$ and $\begin{pmatrix} 2 \\ 3k \end{pmatrix}$ are parallel.
k is a positive number.
Work out the value of k.

10 Hassan invested £11,500 in a savings account for 2 years.
Compound interest was paid at a fixed rate per year.
At the end of the 2 years the account held £12,438.40.
Work out the annual rate of interest.
(Calculator)