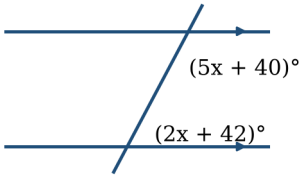
Day 237	A Tier 10-a-day
1 The diagram shows two parallel lines crossed by a straight line. (a) Work out the value of x. (b) Work out the size of the angle marked (5x + 40)°. The diagram is not drawn accurately.  	
2 A sofa costs £300 plus VAT at 20%. In a sale, the price including VAT is reduced by 20%. Work out the sale price of the sofa.	
3 A straight line has equation $x + 5y = -2$ (a) Find the gradient of the line. (b) Find the coordinates of the point where the line crosses the x-axis.	
4 A scientist wants to estimate the number of deer in a forest. She catches 100 deer, marks each one and returns them. Later she catches a second sample of 60 deer. 10 of these are marked. Work out an estimate for the total number of deer in a forest.	
5 Solve $9^x = \frac{1}{9}$	

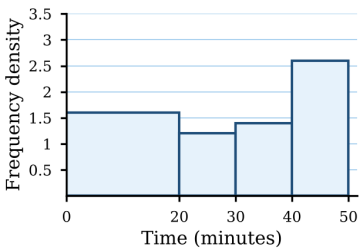
Day 237 **A Tier 10-a-day**

6 The point P(−8, 15) lies on a circle with centre O(0, 0).
(a) Work out the equation of the circle, in the form $x^2 + y^2 = r^2$.
(b) Find the equation of the tangent to the circle at P.

7 PQR is a right-angled triangle with the right angle at Q.
PQ = 14 cm and angle QPR = 45°.
Work out the exact length of QR.
Do not use a calculator.

8 The value of a house increases by 5% each year. (Calculator)
After 2 years it is worth £44,100.
Work out its value at the start.

9 The histogram shows information about the time of some items.
(a) Work out the number of items with a time in the class 0 to 20 minutes.
(b) Work out an estimate for the number with a time greater than 25 minutes.



10 Hassan invests £6,000 in a savings account. (Calculator)
Compound interest is paid at a fixed rate each year.
After 2 years the investment is worth £6,489.60.
Work out the annual rate of interest.