Day 43	A Tier 10-a-day
1 Here are the ingredients for 12 pancakes. Flour: 480 g Sugar: 240 g Butter: 300 g (a) Work out how much flour is needed for 3 pancakes. (b) Hannah has 421 g of sugar. What is the greatest number of pancakes she can make?	
2 AB is a straight line of length 8 cm. A point P moves so that it is always less than 3 cm from the point A. Describe the region where P can be.	
3 Work out $\sqrt{6.25 \times 10^{-4}}$ Give your answer in standard form.	
4 (a) Factorise $x^2 - 100$ (b) Use the same idea to work out $48^2 - 2^2$ without a calculator.	
5 The ratio of boys to girls in a youth club is 9 : 10. There are 14 more girls than boys. Work out the total number of boys and girls.	

Day 43	A Tier 10-a-day
6 P is the point (3, −5) and Q is the point (−5, −8). (a) Find the midpoint of PQ.	
7 Rationalise the denominator of $\frac{6}{3-\sqrt{6}}$ Give your answer in the form $a + b\sqrt{c}$ where a and b are integers.	
8 The point P(15, −8) 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.	
9 A bag contains 4 black pens and 4 blue pens. Three pens are taken at random without replacement. Work out the probability that all three pens are black.	
10 A runner travels 360 m in 10.1 s. The distance is measured to the nearest 10 metres and the time to the nearest 0.1 second. (Calculator) Work out the upper bound for the runner's speed in m/s. Give your answer correct to 3 significant figures.	