Day 270	A Tier 10-a-day
1 A scientist wants to estimate the number of frogs in a pond. She catches 50 frogs, marks each one and returns them. Later she catches a second sample of 60 frogs. 5 of these are marked. Work out an estimate for the total number of frogs in a pond.	
2 (a) Work out 0.6×0.07 (b) Work out $4.8 \div 0.4$	
3 The population of a town is 40000. (Calculator) It increases by 12% each year. Work out the population after 3 years. Give your answer to the nearest whole number.	
4 Solve $6x^2 + 11x = -4$	
5 The value of a house increases by 20% each year. (Calculator) After 2 years it is worth £46,800. Work out its value at the start.	

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6 Solve the simultaneous equations $y = x^2 + 3x - 8$ $y = x + 7$	
7 Boat P sails 18 miles from a harbour on a bearing of 215°. Boat Q sails 8 miles from the same harbour on a bearing of 100°. (Calculator) Work out the distance between the two boats. Give your answer to 3 significant figures.	
8 The mean mark of 10 adults in a test is 69. The mean mark of 10 children in the same test is 42. Work out the mean mark of all 20 people.	
9 Write $0.6\dot{4}\dot{9}$ as a fraction in its simplest form.	
10 A, B, C and D are points on a circle. AC and BD meet at E. Angle BAC = 30° and angle ACD = 45°. Work out the size of angle x (angle AEB). Give reasons for your working. 	