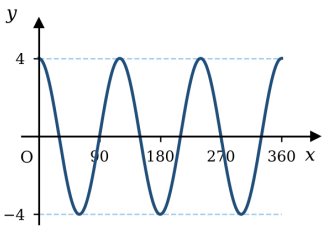
Day 321	S Tier 10-a-day
1 Solve $x^{-\frac{3}{2}} = \frac{1}{8}$	
2 The mean of 10 numbers is 112. One number is removed and the mean of the remaining 9 numbers is 119. Work out the number that was removed.	
3 Solve $4x^2 - 8x - 5 = 0$	
4 A biased spinner lands on one of four outcomes with these probabilities. red: 2x; blue: x + 0.2; green: 3x; yellow: 0.2 (a) Work out the value of x. (b) The biased spinner is used 150 times. Work out an estimate for the number of times it lands on red.	
5 Make l the subject of $T = \frac{5}{l^2}$ where l is positive.	

Day 321	S Tier 10-a-day
6 E is directly proportional to the cube of v. When v = 4, E = 192. (a) Find a formula for E in terms of v. (b) Work out the positive value of v when E = 375.	
7 In one country, income tax is worked out like this: The first £12,000 of income is not taxed. The next £30,000 is taxed at 10%. All income above that is taxed at 30%. Hana earns £79,000 in a year. Work out how much income tax Hana pays.	
8 The diagram shows the graph of y = a cos bx, where a and b are positive integers. (a) Write down the value of a and the value of b. (b) Work out the value of y when x = 330°. 	
9 Find the smallest positive integer k such that 1323 × k is a square number.	
10 A cone is cut parallel to its base to make a smaller cone and a frustum. The frustum has height 12 cm, top radius 6 cm and base radius 18 cm. Work out the volume of the frustum. Give your answer in terms of π. 