Day 194	IGCSE 10-a-day
1 A flight leaves London at 19:15 (London time). It takes 6 hours 55 minutes. When it is 12:00 in London it is 07:00 in New York. At what time, in New York time, does the flight land? Say if it is on a different day.	
2 Solve $\frac{x+1}{3} + \frac{x+4}{6} = 2$	
3 On a ferry there are x adults and y children. There are at most 40 people. There are at least 3 children for every adult. There are at least 4 adults. (a) Write down three inequalities for x and y. (b) Find the greatest number of children on the ferry.	
4 The tangents at two points A and B on the curve $y = 2x^3 + 15x^2 + 34x + 7$ are parallel to the line $y = -2x - 7$. Find the coordinates of A and B.	
5 Solve $x^2 + 8x + 1 = 0$ Give your answers in the form $a \pm \sqrt{b}$	

Day 194	IGCSE 10-a-day
6 $n(\xi) = 100$, $n(A) = 27$, $n(B) = 20$ and $n(A \cap B) = 5$. An element of ξ is chosen at random. (a) Find the probability that it is in neither A nor B. (b) Given that it is in A, find the probability that it is not in B.	
7 A curve has equation $y = x^4 - 2x^2 + 6$. Find the coordinates of the stationary points of the curve and determine the nature of each.	
8 A walker leaves a camp P and travels 42 km on a bearing of 335° to Q. (Calculator) It then travels 94 km on a bearing of 105° to R. (a) Work out the distance PR. (b) Work out the bearing of R from P. Give distances to 1 decimal place and the bearing to the nearest degree.	
9 A bag contains 3 red beads and 5 blue beads. Two beads are taken at random without replacement. Work out the probability that (a) exactly one is red, (b) at least one is red.	
10 A curve has equation $y = x^3 - x^2 + 3x - 5$. Show that y is an increasing function for all values of x.	