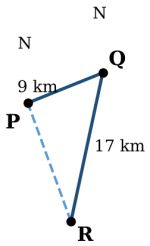
Day 9	IGCSE 10-a-day
1 The 6th term of an arithmetic sequence is 44. The 9th term of the sequence is 56. (a) Find an expression for the nth term of the sequence. (b) Is 114 a term of the sequence? You must show your working.	
2 $f(x) = 2x^3 - 6x + 7$ Find the y coordinate of the local maximum point and the y coordinate of the local minimum point.	
3 $f(x) = -2x - 8$ and $g(x) = 2x^2 - 3$. (a) Work out $g(-1)$. (b) Work out $fg(-4)$.	
4 The distance to a village is 3.1 km, correct to 2 significant figures. Write down the error interval for the distance to a village, using d.	
5 $y = \frac{(x + 5)(3x - 4)}{x}$ $(x \neq 0)$ (a) Show that $\frac{dy}{dx} = \frac{3x^2 + 20}{x^2}$. (b) Work out the gradient of the curve when $x = -1$.	

Day 9	IGCSE 10-a-day
6 Expand and simplify $(x - 5)(x - 2)(x + 3)$	
7 x is an acute angle and $\cos x = \frac{3}{10}$. (a) Find the exact value of sin x. (b) Find the exact value of tan x. Give each answer as a fraction or a surd. Do not use a calculator.	
8 A ship sails 9 km from P to Q on a bearing of 068°. It then sails 17 km from Q to R on a bearing of 192°. (a) Work out PR (3 s.f.). (b) Work out the bearing of R from P (nearest degree). (Calculator) 	
9 F is directly proportional to the square of m and inversely proportional to d. When m = 1 and d = 2, F = 12. Work out the value of F when m = 2 and d = 2.	
10 The diagram shows a sketch of the curve $y = -x^3 + 12x - 8$ and the line y = k. The line meets the curve at three different points. Find the range of possible values of k. 