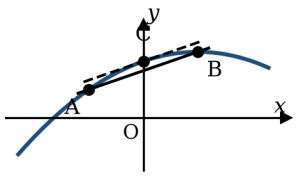
Day 365	IGCSE 10-a-day
1 R is the region that satisfies all of these inequalities: $y < 3x - 2$ $x + y \geq 9$ $x > 1$ Which of these points lie in R? A(1, 8) B(1, 10) C(2, 2) D(4, 3) E(7, 7)	
2 Factorise fully $(x + 6)^2 - 4$	
3 Evan invests £1,500. The account pays compound interest of 4% a year for the first 2 years, then 1.5% a year for the next 2 years. Work out the total amount after 4 years, to the nearest penny. (Calculator)	
4 $y = 2x + \frac{32}{x}$ Find the coordinates of the stationary points and determine whether each is a maximum or a minimum.	
5 Triangle ABC has AB = 18 cm and BC = 10 cm. The area of triangle ABC is $45\sqrt{3}$ cm^2. Angle ABC is acute. Work out the size of angle ABC. Do not use a calculator.	

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6 The price of a bike is increased by 50%. Later the new price is reduced by 25% in a sale. The sale price is £247.50. Work out the price before the increase. (Calculator)	
7 The diagram shows part of the curve $y = -x^2 + 2x + 6$. A and B are the points on the curve with x coordinates -1 and 1. C is the point on the curve between A and B at which the tangent is parallel to AB. Find the coordinates of C. 	
8 OA = **a** and OB = **b**. OP = 2**a** + **b**, OQ = -7**a** $-$ 11**b** and OR = -13**a** $-$ 19**b**. (a) Show that P, Q and R lie on a straight line. (b) Work out the ratio PQ : QR in its simplest form.	
9 A craft shop makes x necklaces and y bracelets each day. Each necklace needs 1 minute of making time and 4 beads. Each bracelet needs 3 minutes of making time and 4 beads. There are 21 minutes of making time and 44 beads available. The profit is £3 for each necklace and £6 for each bracelet. (a) Write down two inequalities, other than $x \geq 0$, $y \geq 0$. (b) Find the greatest profit.	
10 The normal to the curve $y = -x^2 + 4x + 6$ at the point P where x = 1 meets the curve again at Q. Find the coordinates of Q.	