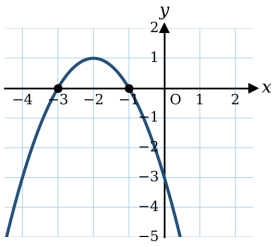
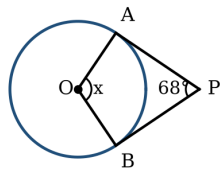
Day 339	A Tier 10-a-day
1 PQ is a straight line. A point P moves so that it is always 8 cm from the line PQ, on one side of it. Describe the locus of P.	
2 The population of a village is increased by 50%. The new population is then decreased by 20%. Work out the overall percentage change.	
3 Work out $(8 \times 10^{-4}) \times (2.5 \times 10^{-4})$ Give your answer in standard form.	
4 A shop sells flour in 3 different sizes. Small bag: 200 g for £1.85 Medium bag: 400 g for £3.45 Large bag: 1000 g for £7.30 Which bag is the best value for money? You must show your working.	
5 The diagram shows the graph of $y = -x^2 + bx + c$. Find the value of b and the value of c. 	

Day 339 **A Tier 10-a-day**

6 PA and PB are tangents to a circle with centre O.
Angle APB = 68°.
Work out the size of angle x (angle AOB).
Give a reason for each step of your working.



7 (a) Show that the equation $x^3 + 5x - 30 = 0$ can be rearranged to give $x = \frac{30 - x^3}{5}$

(b) Show that the equation has a solution between x = 2 and x = 3

8 The value of an investment grows by 20% each year. (Calculator)
After 2 years it is worth £48,960.
Work out its value at the start.

9 Rationalise the denominator of $\frac{2}{2 - \sqrt{3}}$

Give your answer in the form $a + b\sqrt{c}$ where a and b are integers.

10 Make x the subject of $y = \frac{4x - 1}{-x - 4}$