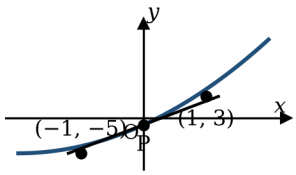
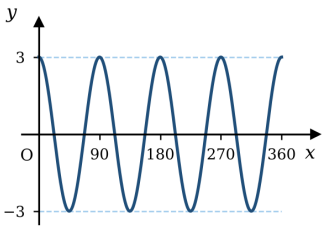
Day 147	IGCSE 10-a-day
1 Work out the value of $a^2 - 3bc$ when $a = -4$, $b = 4$ and $c = 2$.	
2 A bag has 2 black and 7 white counters. Two counters are taken at random. Work out the probability that both are black when (a) the first is replaced before the second is taken (b) the first is not replaced	
3 A bag contains balloons. $\frac{1}{5}$ of the balloons are pink and $\frac{2}{5}$ of the balloons are silver. The rest of the balloons, 48 of them, are gold. How many pink balloons are there?	
4 The diagram shows part of the curve $y = x^2 + 4x - 1$. The line shown is the tangent to the curve at the point P. (Not drawn accurately.) (a) Use the two marked points on the tangent to work out its gradient. (b) Use differentiation to find the x coordinate of P. 	
5 Here are five numbers: $3x - 3$, $x - 2$, x, $2x + 1$, $x + 1$. The mean of the five numbers is 9. (a) Work out the value of x. (b) Work out the median of the five numbers.	

Day 147 **IGCSE 10-a-day**

6 £8,000 is invested for 3 years at r% per year compound interest.
At the end of 3 years the investment is worth £8,741.82.
Work out the value of r. (Calculator)

7 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 $x = 105°$.



8 A curve has equation $y = 2x^4 - 36x^2 + 5$.
Find the coordinates of the stationary points of the curve and determine the nature of each.

9 Use the iteration formula $x_{n+1} = \sqrt[3]{5x_n + 1}$ with $x_0 = 2$ (Calculator)
to work out x_1, x_2 and x_3.
Give each answer correct to 3 decimal places.

10 The diagram shows the graph of $s = t^3 - 9t^2 + 15t$, the displacement in metres of a particle P from O after t seconds.
P changes direction at A and B. Work out the total distance travelled in the first 7 seconds.

