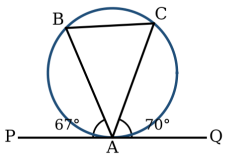
Day 145	IGCSE 10-a-day
1 A particle P moves in a straight line. After t seconds, its displacement from a fixed point O is s metres, where $s = t^3 - 9t^2 + 24t$ $(t \geq 0)$ Find the distance between the two positions where P is at rest.	
2 The nth term of a sequence is $n^2 - n + 4$. (a) Work out the 11th term. (b) Is 94 a term of the sequence? You must show your working.	
3 PAQ is a tangent to the circle at A. B and C are points on the circle. Angle PAB = 67° and angle CAQ = 70°. (a) Work out the size of angle ABC. (b) Work out the size of angle ACB. The diagram is not drawn accurately. 	
4 $y = 2x^3 - 24x + 5$ At the point where x = 1, is the curve increasing or decreasing? You must show your working.	
5 A circular arc has a chord AB of length 48 cm. The greatest distance between the chord and the arc is 12 cm. Work out the radius of the circle.	

Day 145 **IGCSE 10-a-day**

6 A bag contains x yellow discs and 4 blue discs.
Two discs are taken at random without replacement.

The probability that both are yellow is $\frac{3}{14}$.

(a) Show that $11x^2 - 35x - 36 = 0$.
(b) Hence work out the number of discs in the bag.

7 A curve has equation $y = ax^2 + \frac{b}{x}$, where a and b are constants.
The point (2, 10) lies on the curve and the gradient of the curve at this point is 13.
Find the values of a and b.

8 The table shows how 117 students choose a sport.
A person from the group "Year 10" is picked at random. Work out the probability that this person chose Hockey.

	Football	Netball	Hockey	Total
Year 10	27	13	14	54
Year 11	29	29	5	63
Total	56	42	19	117

9 Simplify $\frac{1}{3+\sqrt{3}} - \frac{1}{3-\sqrt{3}}$
Give your answer with a rational denominator.

10 In a population of 20,000 people, 5% have a certain disease.
A test gives a positive result for 98% of people who have the disease and for 1% of people who do not.
A person is chosen at random and tests positive.
Work out the probability that they have the disease.