Day 159 **S Tier 10-a-day**

1 Write these numbers in order of size, starting with the smallest.

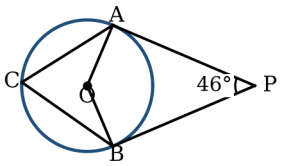
$0.73, \frac{3}{8}, \frac{7}{12}, \frac{1}{5}$

2 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle APB = 46°.

(a) Work out the size of angle AOB.

(b) Work out the size of angle ACB.

The diagram is not drawn accurately.



3 Use the iteration formula $x_{n+1} = \sqrt{2x_n + 7}$ with $x_0 = 1$ (Calculator)

to work out x_1, x_2 and x_3.

Give each answer correct to 3 decimal places.

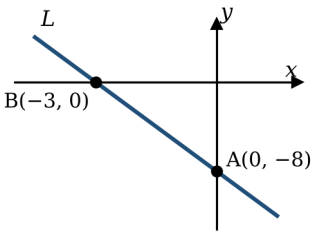
4 Work out $(6.6 \times 10^4) \div (1.5 \times 10^8)$

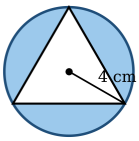
Give your answer in standard form.

5 The diagram shows the straight line L, which passes through the points A and B.

The line M is perpendicular to L and passes through B.

Find the equation of M in the form y = mx + c.



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6 A and B are two events. P(A) = 0.7, P(B) = 0.8 and P(A or B) = 0.94 (a) Work out P(A and B). (b) Are A and B independent? You must show your working.	
7 The diagram shows an equilateral triangle inside a circle of radius 4 cm. The three vertices of the triangle lie on the circle. Work out the area of the shaded region. Give your answer in the form $a\pi - b\sqrt{3}$. 	
8 The price of a games console is increased by 40%. Later the new price is reduced by 20% in a sale. The sale price is £593.60. Work out the price before the increase. (Calculator)	
9 Simplify $\frac{1}{5+\sqrt{10}} + \frac{1}{5-\sqrt{10}}$ Give your answer with a rational denominator.	
10 Isla invested £17,500 in a savings account for 2 years. Compound interest was paid at a fixed rate per year. At the end of the 2 years the account held £20,412. Work out the annual rate of interest. (Calculator)	