Day 58 **S Tier 10-a-day**

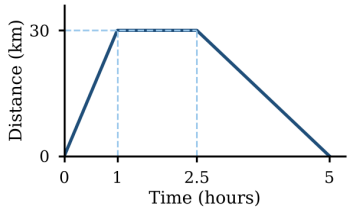
1 Write these numbers in order of size, starting with the smallest.

0.53, 0.6, $\frac{3}{8}$, $\frac{6}{11}$

2 The graph shows Kira's cycle ride to a café and back.

(a) Work out Kira's speed on the way back.

(b) Work out Kira's average speed for the whole ride, including the stop.



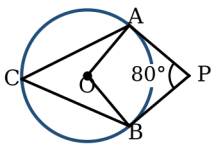
3 Write $\sqrt{27} + \sqrt{48} - \sqrt{3} + \sqrt{108}$ in the form $a\sqrt{3}$ where a is an integer.

4 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle APB = 80°.

(a) Work out the size of angle AOB.

(b) Work out the size of angle ACB.

The diagram is not drawn accurately.



5 Here are the first five terms of a quadratic sequence.

11, 19, 31, 47, 67

Find an expression for the nth term.

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6 Isla, Evan and Beth share some sweets. Isla : Evan = 6 : 3 Evan : Beth = 4 : 6 (a) Work out the ratio Isla : Evan : Beth. (b) They share 63 sweets altogether. How many sweets does Evan get?	
7 x is an obtuse angle and $\sin x = \frac{10}{13}$. (a) Find the exact value of cos x. (b) Find the exact value of tan x. Give each answer as a fraction or a surd. Do not use a calculator.	
8 A and B are the points $(-5, -4)$ and $(-15, 2)$. AB is a diameter of a circle. Find an equation of the circle.	
9 A square has sides of length $(6 + 2\sqrt{2})$ cm. Work out the area of the square. Give your answer in the form $a + b\sqrt{2}$	
10 AB is a chord of a circle, centre O. M is the midpoint of AB. (Calculator) (a) Work out the radius of the circle. (b) Work out angle AOB, to 1 decimal place. The diagram is not drawn accurately. 