Day 206 **S Tier 10-a-day**

1 The table shows the daily visitors over six periods.
The 3-point moving average centred on Thu is 21.
(a) Work out the value of x.
(b) Work out the 3-point moving average centred on Fri.

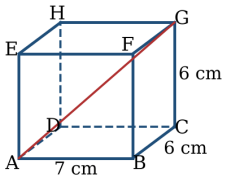
	Mon	Tue	Wed	Thu	Fri	Sat
Value	30	38	15	x	10	24

2 Solve $6x^2 + 5x = 21$

3 The population of a village decreased by 5% in 2023.
In 2024 the population decreased by a further 25%.
Work out the overall percentage decrease over the two years.

4 Triangle ABC has AB = 14 cm and BC = 4 cm.
The area of triangle ABC is $14\sqrt{3}$ cm^2.
Angle ABC is acute.
Work out the size of angle ABC.
Do not use a calculator.

5 The length of a rectangle is increased by 25%.
The width of the rectangle is increased by 50%.
Work out the percentage change in the area of the rectangle.

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6 The price of a tablet is increased by 15%. Later the new price is reduced by 40% in a sale. The sale price is £345. Work out the price before the increase. (Calculator)	
7 A circle has centre C(5, −1) and passes through the point P(4, −3). Find an equation of the circle.	
8 Sofia invests £1,500 at 8% per year compound interest. After how many whole years will the investment first be worth more than £2,500? (Calculator)	
9 The diagram shows a cuboid ABCDEFGH. (Calculator) (a) Work out the length of the diagonal AG. (b) Work out the angle between AG and the base ABCD, to 1 decimal place. The diagram is not drawn accurately. 	
10 a = 80.9 and b = 9.53, both correct to 3 significant figures. Work out a ÷ b. Write down your answer to a suitable degree of accuracy. You must show your working and give a reason for your answer. (Calculator)	