Day 234 **A Tier 10-a-day**

1 $f(x) = 4x + 4$
$g(x) = x^2 - 6$
Find $fg(-6)$

2 The frequency table shows data for 25 matches.
(a) Find the median.
(b) Work out the range.

Goals scored	0	1	2	3	4
Frequency	8	1	4	5	7

3 A runner travels 270 m in 14.9 s. The distance is measured to the nearest 10 metres and the time to the nearest 0.1 second. (Calculator)
Work out the upper bound for the runner's speed in m/s.
Give your answer correct to 3 significant figures.

4 $f(x) = \frac{2}{x} + 5$
(a) Find $f^{-1}(x)$
(b) Work out $f^{-1}(8)$

5 Work out $(2\frac{4}{5} + 3\frac{1}{2}) \div 3\frac{3}{5}$
Give your answer as a mixed number in its simplest form.

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6 The size of each angle of a pentagon is shown as an expression: $(3x + 20)°$, $(2x + 60)°$, $(x + 20)°$, $(3x + 55)°$, $(2x + 44)°$ Work out the value of x.	
7 The mean of the five numbers 7, 24, 21, x, 14 is 16. Work out the value of x.	
8 Rationalise the denominator of $\frac{52}{4+\sqrt{3}}$ Give your answer in the form $a + b\sqrt{c}$ where a and b are integers.	
9 A piece of plastic has a volume of 190 cm^3. The density of the material is 4.2 g/cm^3. Work out the mass of the piece of plastic.	
10 A, B, C and D are points on a circle. AC and BD meet at E. Angle BAC = 42° and angle ACD = 55°. Work out the size of angle x (angle AEB). Give reasons for your working. 	