Day 356 **A Tier 10-a-day**

1 The table shows information about 71 people.
One person is chosen at random.
(a) Find the probability that the person is a child and chose coffee.
(b) The person chose tea. Find the probability that they are an adult.

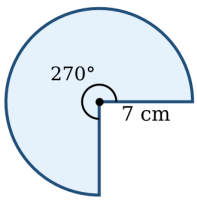
	Tea	Coffee	Total
Adults	9	18	27
Children	24	20	44
Total	33	38	71

2 A solid hemisphere has radius 2 cm.
Work out the total surface area of the hemisphere.
Give your answer in terms of π.

3 Work out the value of
(a) $(\frac{1}{2})^{-2}$
(b) $1000^{\frac{-2}{3}}$

4 Priya is x years old.
Her aunt is 4 times as old as Priya, plus 1 years.
The sum of their ages is 56 years.
Work out how old her aunt is.

5 The diagram shows a sector of a circle of radius 7 cm.
Work out the area of the sector.
Give your answer in terms of π.
The diagram is not drawn accurately.



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6 The mean of the five expressions below is 9. 3x, x + 6, 7, 4x, 8 Work out the value of x.	
7 Write as a single fraction $\frac{-2}{(x-5)} - \frac{1}{(x+4)}$	
8 One rice grain has a mass of 2×10^{-6} g. A sample contains 3×10^{8} rice grains. Work out the total mass of the sample. Give your answer in standard form.	
9 The point P(−6, −8) lies on a circle with centre O(0, 0). (a) Work out the equation of the circle, in the form $x^2 + y^2 = r^2$. (b) Find the equation of the tangent to the circle at P.	
10 A cyclist travels 720 metres in 18.9 seconds. The distance is correct to the nearest 10 metres and the time to the nearest 0.1 second. (a) Work out the upper bound and the lower bound of the speed in m/s. (b) Write the speed to a suitable degree of accuracy. Give a reason for your answer.	