Day 164 **A Tier 10-a-day**

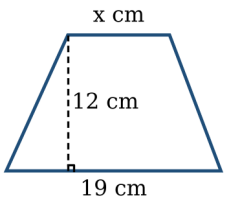
1 A tin of soup is a cylinder with radius 7 cm and height 19 cm.
Work out the volume. Give your answer in terms of π.

2 (a) Between which two consecutive whole numbers does $\sqrt[3]{88}$ lie?
(b) Work out $3^3 - 4^2$

3 Here is some information about 20 matches.
(a) Work out the mean.
(b) Write down the mode.

Goals scored	0	1	2	3	4
Frequency	2	2	5	9	2

4 The area of this trapezium is 168 cm^2.
Work out the value of x.
The diagram is not drawn accurately.



5 (a) Factorise $4y^2 - 25z^2$
(b) Use the same idea to work out $36^2 - 14^2$ without a calculator.

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6 Write the recurring decimal $0.\dot{6}\dot{7}$ as a fraction in its simplest form.

7 (a) Show that the equation $x^3 + 6x - 37 = 0$ can be rearranged to give $x = \sqrt[3]{37 - 6x}$
(b) Show that the equation has a solution between x = 2 and x = 3

8 The table shows the probabilities of the outcomes of a biased spinner.
(a) Work out the value of y.
(b) The spinner is spun 100 times. Estimate the number of times it lands on grey.

Colour	Black	White	Grey	Pink
Probability	0.35	y	2y	0.35

9 The value of a house increases by 20% each year. (Calculator)
After 2 years it is worth £29,520.
Work out its value at the start.

10 A bag contains 4 mint sweets and 5 toffee sweets.
Three sweets are taken at random without replacement.
Work out the probability that all three sweets are mint.