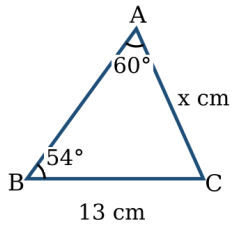
Day 188 **IGCSE 10-a-day**

1 Simplify fully $\frac{6x^{\frac{3}{2}} \times 2x^{\frac{4}{3}}}{6x^{\frac{5}{2}}}$

2 $y = 5x^2 + 5x - \frac{1}{x^2}$

Find $\frac{dy}{dx}$.

3 The diagram shows triangle ABC. (Calculator)
Work out the length of AC. Give your answer correct to 1 decimal place.
The diagram is not drawn accurately.



4 A bag contains balloons.
$\frac{2}{3}$ of the balloons are pink and $\frac{1}{5}$ of the balloons are silver.
The rest of the balloons, 8 of them, are gold.
How many pink balloons are there?

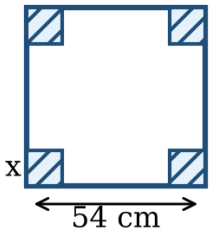
5 The first three terms of a geometric sequence are
3, −9, 27
(a) Write down the common ratio.
(b) Work out the 7th term.

Day 188 **IGCSE 10-a-day**

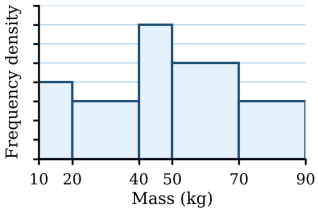
6 The normal to the curve $y = -x^2 + 3x + 4$ at the point where $x = -2$ meets the x-axis at N.
Find the coordinates of N.

7 Evan, Nadia and Leila share some money.
Evan : Nadia = 3 : 6
Nadia : Leila = 5 : 6
(a) Work out the ratio Evan : Nadia : Leila.
(b) Leila gets £28 more than Evan. How much money does Nadia get?

8 Squares of side x cm are cut from the corners of a 54 cm square plastic sheet, which is folded into an open box of volume V cm^3.
(a) Show that $V = 4x^3 - 216x^2 + 2916x$.
(b) Find x for the maximum volume, and this volume.



9 The histogram shows the masses of parcels delivered by a courier.
60 of them had a mass between 20 and 40 kg.
(a) How many had a mass between 40 and 50 kg?
(b) How many parcels are there in total?



10 $f(x) = \frac{2x + 1}{4x + 1}$, $x \neq -\frac{1}{4}$.
Find $f^{-1}(x)$.