Robert Recorde (1512 – 1558) was a Welsh mathematician and writer. He is best known for his book 'The Whetstone of Witte', published in 1557, which introduced the '+' symbol to English speakers. This book also contains the first ever recorded use of the '=' symbol.

But, as well as inventing the equals symbol, Robert Recorde suggested a way for writing powers. Today we might write $3 \times 3 \times 3 \times 3 = 3^4$, but in 1557 there was no such thing as the notation 3^4. Somebody needed to be creative. Before we look at his solution, some new words are needed:

Recorde's word (1557)	2020 vocabulary	2020 notation
zenzic	squared	$\square^2$
cubic	cubed	$\square^3$
first sursolid	to the power of five	$\square^5$
second sursolid	to the power of seven	$\square^7$
third sursolid	to the power of eleven	$\square^{11}$
… sursolid	*powers of prime numbers continued*	

These days we write $(a^m)^n = a^{mn}$ for one of laws of indices. Using this fact (which was true in 1557 even though there wasn't a way to write it):

Recorde's description	2020 description	2020 meaning
zenzic of x	square of x	x^2
zenzizenzic of x	square of the square of x	$(x^2)^2 = x^4$
zenzizenzizenzic of x	square of the square of the square of x	$((x^2)^2)^2 = x^8$
cubic of x	cube of x	x^3
zenzicubic of x	square of the cube of x	$(x^3)^2 = x^6$
first sursolid of x	first prime number power (> 3) of x	x^5
second sursolid of x	second prime number power (> 3) of x	x^7
square of first sursolid of x	square of the fifth power of x	$(x^5)^2 = x^{10}$

Questions

1. Complete the following:

   a) $\left(x^\square\right)^\square = x^{15}$

   b) $\left(x^\square\right)^\square = x^{21}$

   c) $\left(\left(x^\square\right)^\square\right)^\square = x^{18}$

   d) The zenzizenzicubic of $x = \left(\left(x^\square\right)^\square\right)^\square = x^\square$

2. What would x^{13} be called in Recorde's book?

3. How does this link with products of prime factors?