

18: Might 1.25 be greater than 1.4?

- maybe, because 125 is bigger than 14?
- or even, because 25 is bigger than 4 ?

Where a digit is positioned is crucially important to how much it contributes to the number.

The further to the left a digit lies, the greater its **weight**.

Consider 2111 and 1999.

Each of these numbers has the same number of digits. 2111 is the larger number because in its leftmost position it has a 2, whereas 1999 has a 1 in that position (and so the contribution of all the 9's to the right of the 1 in 1999 do not help to 'overcome' the 1's in 2111).

The same holds behind the point:

in 1.25 the leftmost position behind the point is 2; 1.4 has the digit 4 in that position, so, (with the same number to the left of the point in both cases), 1.4 is greater than 1.25.

The digit in the leftmost position (behind the point) counts the tenths while the next position to its right counts the hundredths. One tenth (1, being the smallest non-zero digit) is always greater than nine hundredths (the largest digit is 9).

So 1.3 is bigger than 1.29, or even 1.29880789...