

10. Are $\frac{1}{2}$ of 6, 0.5 of 6 and 50% of 6 equal or not?

0.1 is one tenth. This is because the route from 0 to 1 goes through 0.1, 0.2, 0.3, etc. i.e., 10 steps. Each such step (each 0.1 increment) is therefore 1 tenth (of one).

0.5 is reached after 5 such steps, namely halfway up the 10 steps which led to 1.

This is why $0.5 = \frac{1}{2}$

Therefore, for instance, 0.5 of 6 = $\frac{1}{2}$ of 6.

Note also:

$\frac{1}{2}$ of 6 is 3 (usually...)

0.5 of 6 is 0.5×6 ('times' - 'of' equivalence), and 0.5×6 (by long multiplication) is also 3.

Now, 50% ?

It helps if you consider the percentage sign, %, as a misprint, with the correct version as /100. This is to remind yourself that it means 'divided by 100'.

It is then obvious that 50% is nothing more than $\frac{50}{100}$

50% is best visualised as dividing 50 (cakes) between 100 (children). Each, then gets one half ($\frac{1}{2}$) (a cake). That is why $50\% = \frac{1}{2}$ and 50% of 6 is indeed equal to $\frac{1}{2}$ of 6.

Note also: 50% of 6 is $\frac{50}{100} \times 6$. Doing the multiplication first: $\frac{300}{100} (= 3)$, the same as

$\frac{1}{2}$ of 6.

Now one yard is 36 inches and so,

25% of one yard = 9 inches

and taking square roots of both sides gives,

5% of one yard = 3 inches.

That's right isn't it ? Or would you like it in metric:

1 metre = 100 cm so that,

$$\frac{1}{4} \text{ of one metre} = 25 \text{ cm}$$

and taking square roots of both sides gives,

$$\frac{1}{2} \text{ of one metre} = 5 \text{ cm.}$$

What's wrong ?