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$$\sum_{k=1}^{n} ar^{k-1} = a\left(\frac{1-r^n}{1-r}\right)$$ From book

So, given $\sum_{k=1}^{15} \left(\frac{2}{3}\right)^k$ (for instance),

you need to "tweak it into the proper form":

$$\left(\frac{2}{3}\right)^k = \left(\frac{2}{3}\right)^{k-1+1} = \cancel{2}\left(\frac{2}{3}\right)^{k-1} \cdot \left(\frac{2}{3}\right)^1$$, so that

$$\sum_{k=1}^{15} \left(\frac{2}{3}\right)^k = \sum_{k=1}^{15} \left(\frac{2}{3}\right)\left(\frac{2}{3}\right)^{k-1}$$

$a = \frac{2}{3}$, $r = \frac{2}{3}$, $n = 15$ & the

formula works.

The answer would be $\frac{2}{3}\left(\frac{1-\left(\frac{2}{3}\right)^{15}}{1-\frac{2}{3}}\right)$

2/3 * (1 - (2/3)^15) / (1 - 2/3)

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or just 1/3, but make sure it's in parentheses!