Math 4. Classwork # 12.

Distributive property of an expression:

$$(a+b)\cdot(c+d) = ?$$

Let's do the substitution:

$$a+b=u$$

Now let's use the distributive property:

$$(a+b)\cdot(c+d) = u(c+d) = uc+ud$$

Now let's put back $(a+b)$ instead of u:

$$uc+ud = (a+b)c+(a+b)d$$

Finally, let's use the distributive property again:

$$(a+b)c+(a+b)d = ac+bc+ad+bd$$

$$\boxed{(a+b)\cdot(c+d) = ac+bc+ad+bd}$$

Multiply using distributive property:

$(25+a)\cdot(4+d) =$

$(7-a)\cdot(d-6)=$

$(14+a)\cdot(-9-b)=$

Homework review

***Peter got a new book. On day 1 he read $\frac{1}{3}$ of the whole book and on day 2 he read $\frac{1}{3}$ of the rest of the book. On day 3, Peter once again read $\frac{1}{3}$ of the rest of the book and now he needs to read 80 more pages to finish the book. How many pages are there in the book?

Start from the end of the story and work backwards:

On day 3 Peter read $\frac{1}{3}$ of the remaining pages and after that 80 pages were left to read. That means that 80 is $\frac{2}{3}$ of those remaining pages. So, the number of pages Peter read on the third day is 40, which is $\frac{1}{3}$. This makes the total number of pages that Peter had to read after day 2 ended or at the beginning of day 3 80+40=120 or 80:2x3=120

Next, 120 is what Peter started with on day 3, right? So Peter read $\frac{1}{3}$ of the remaining pages during day 2 and had 120 pages remaining. That means that 120 is $\frac{2}{3}$ of the remaining pages. So, the number of pages Peter read on the day 2 is 60, which is $\frac{1}{3}$. This makes the total number of pages that Peter had to read after day 1 or at the beginning of day 2 120+60=180 or 120:2x3=180

Next, 180 is what Peter started with on day 2. Same as before: 180 is $\frac{2}{3}$ of the remaining pages after Peter read $\frac{1}{3}$ of the book on day 1. If 180 is $\frac{2}{3}$ of the book, then the whole book is 180 + 90=270 pages or 180:2 x3=270

The rope cutting problem:

You need to cut $\frac{1}{2}$ m from a rope $\frac{2}{3}$ m long. You don't have any tools to do the measurements. How you can do it? Which part of your original $\frac{2}{3}m$ rope would you need to cut?

In other words what fraction is $\frac{1}{2}\ of\ \frac{2}{3}$?

$\frac{1}{2}:\frac{2}{3}=\frac{1}{2}x\frac{3}{2}=\frac{3}{4}$ You will need to cut $\frac{3}{4}$ of the $\frac{2}{3}m$ rope