Helpful Overleaf Feature. If you left double click at a place in the PDF file, then Overleaf indicates the corresponding place in the LaTeX file, making it easy to compare the PDF output to LaTex input.

How to align (long) displayed equationss.

The below math is a slight modification to the proof of Theorem 1.8 from this book.

The third method (called 3.) is recommended.

The first 2 methods slowly work us up to the recommended (third) method.

1. Aligning an equation without tagging.

This way aligns but does not *tag* the equation. Recall the * says *do not create a tag*. The & sign tells TeX where the alignment is to be. To start a new line just use a double blackslash.

Using algebra, we obtain

$$\begin{aligned} x \cdot y &= (2m+1)(2n+1) \\ &= 4mn + 2m + 2n + 1 \\ &= 2(2mn + m + n) + 1 \\ &= 2q + 1 \end{aligned}$$

where $q = 2mn + m + n$.

2. Aligning an equation with tagging.

Now we will tag (i.e., number) the equation.

Using algebra, we obtain

$$\begin{aligned} x \cdot y &= (2m+1)(2n+1) \\ &= 4mn + 2m + 2n + 1 \\ &= 2(2mn + m + n) + 1 \\ &= 2q + 1 \end{aligned} \tag{1}$$

where $q = 2mn + m + n$.

3. Aligning an equation with tagging and labeling.

Now we will tag (i.e., number) the equation as well as *label* it as so to refer back to it later.

Using algebra, we obtain

$$\begin{aligned} x \cdot y &= (2m+1)(2n+1) \\ &= 4mn + 2m + 2n + 1 \\ &= 2(2mn + m + n) + 1 \\ &= 2q + 1 \end{aligned} \tag{2}$$

where $q = 2mn + m + n$. It follows from (2) that ⟨you can keep going ... the *eqref* helps us automatically refer to the equation that we want the reader to be looking at⟩.