

Source for picture examples: <https://en.wikibooks.org/wiki/LaTeX/Picture>

For understanding how minipages behave, it is helpful to have some additional text in a document, such as this. The tricky thing about minipages is usually to get them to align nicely in the vertical dimension. So, let us create some minipages, and see what they do.

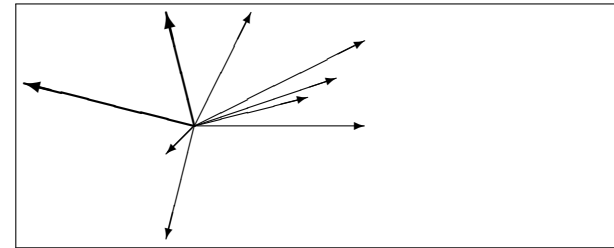
We are now inside a minipage which was created by `\begin{minipage}{0.45\textwidth}`.

As you perhaps suspect, the content of the two minipages on this page is vertically centered with respect to the minipages.

Also note that inside minipages, the `\parindent` dimension is set to zero by default. You can still set it to anything you like by using the usual `\setlength{\parindent}{<length>}` syntax...

...as was done right before starting this paragraph. In fact, the `\parindent` length is now (i.e. right from the start of this paragraph) set to its original value. This was accomplished by first creating a new length: `\newlength{\parindentBackup}`, and then storing the value of `\parindent` in that length *before* the minipage was opened, via: `\setlength{\parindentBackup}{\parindent}`. Then `\parindent` was restored to its original value before the start of this paragraph.

Lastly, you may have noticed that the minipage itself is indented with respect to regular text on the page. That is because it is basically the starting element of a paragraph, and as such `\parindent` was applied to it before the minipage was started. We will fix this on the next page.



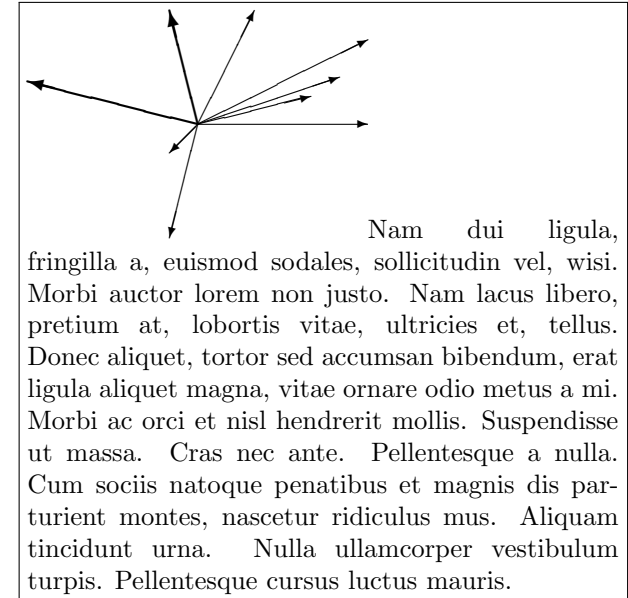
As can be seen when comparing the alignment of this minipage's content with the dummy text right above, the minipage is now not indented with respect to the rest of the text of the page. This was achieved by preceding the minipage command with `\noindent`. This will also work for any other paragraph, should you so wish (though usually it is not recommended).

Anyway, enough about indentation: Maybe you think that aligning the picture on the right in reference to the vertical center lines of the minipages is not what you want. Maybe you want the picture to be aligned with the top of the first minipage?

Easier said than done! But alright: First things first. Have a look at the minipage on the right. Notice anything? The picture seems to be more aligned like a letter than a picture, or not? The picture's bottom is on the same height as the bottom of the letters on the first line. That actually has little to do with the minipage environment, but it is important to know for getting things aligned as we (okay, `\em\I\em`) want later on.

Now, if I may direct your attention to that red reference line in the middle of the page. The reference line is outside the minipages, meaning it is part of the regular text flow. Note that it is in the vertical center of the two minipages.

This is the reference line!

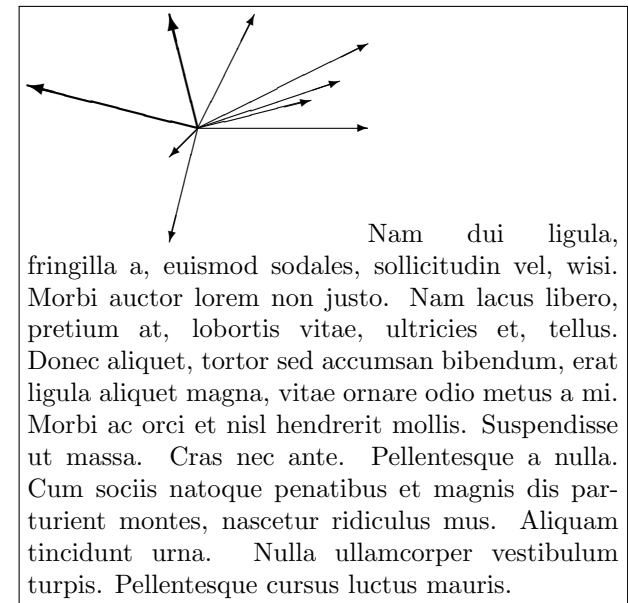


This is what happens when you create a minipage environment (well, two, to be precise) with the optional argument for top alignment, like so: `\begin{minipage}[t]{0.33\textwidth}`

Note that each minipage's first line is aligned with the reference line now. However, because the picture's bottom is aligned with the bottom of the minipage's first line, and thus with the bottom of the reference line, this is not exactly what I'd call a desirable outcome.

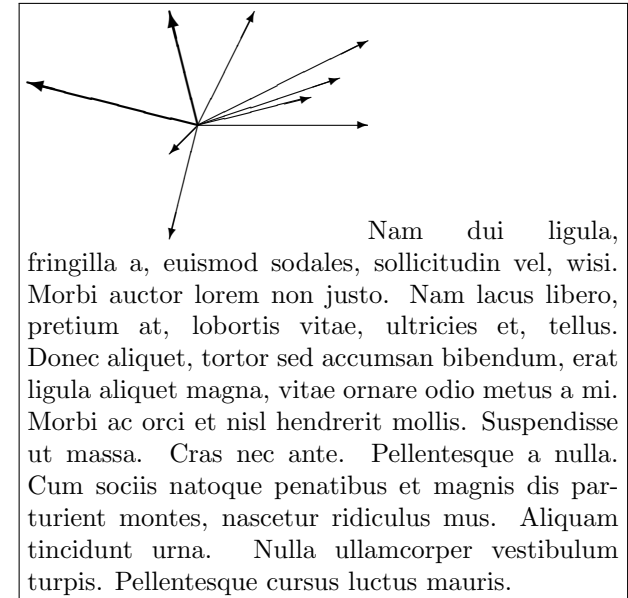
We can also call a minipage with the `[c]` (for center alignment, which is also the default which gets called when you don't specify an optional alignment parameter) or `[b]` (for bottom alignment).

This is the reference line!



This can actually be used for some rather odd placement configurations, like on this page, where the left minipage was created by calling `\begin{minipage}[t]{0.33\textwidth}` for top alignment, and the right one was created by `\begin{minipage}[b]{0.33\textwidth}` for bottom alignment.

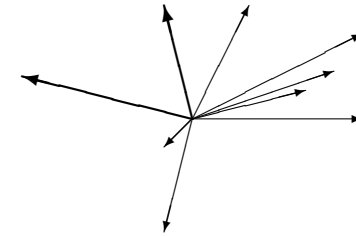
This is the reference line!



But enough about that. What about getting that picture to align in a sane manner? That requires some more optional arguments. To be more precise: `\begin{minipage}[t] [] [b]{0.33\textwidth}` Okay, don't panic. The first argument `[t]` is the top-alignment one from before. Nothing new there. The middle one is the minipage's height. Note that while it is empty in this case (and in most other cases, because usually we don't care to manually calculate how high our minipage is going to be), but it must be there if you want to have the last option, `[b]`. That last optional argument tells the minipage to align the top of the first line with the bottom of the baseline.

Personally, I still find this to be a bit off from perfection. Ideally, the top of the picture should be aligned with the top of the reference line, in my humble opinion.

This is the reference line!



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So let's try that then. First, we create the left minipage with

```
\begin{minipage}[t] [] [t]{0.33\textwidth}
```

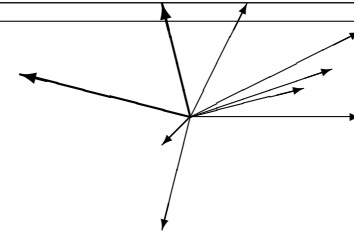
Thus aligning its top line perfectly to the reference line.

The second minipage's content (not the minipage itself, as you can see by the frame) is shifted by negative 1em via `\vspace{-1em}`. This means that its content slightly protrudes above the minipage. Whether or not you care about that is up to you.

Note that the top of the picture is aligned with the top of the reference *line*, not its letters. In the end, how you wish to align this is up to you.

The next page is the same as this one, but without all the lines, so that it is easier to get an impression of how it would look in an actual document.

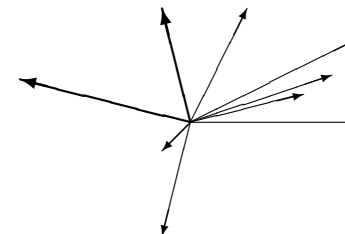
This is the reference line!



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And as promised, these are the same alignment options as on the previous page, but without the visual clutter. Created, again, by using `\begin{minipage}[t][t]{0.33\textwidth}` and by shifting the right minipage's content upwards by 1em with the `\vspace{-1em}` command. I did try out shifting the entire minipage upwards, but somehow L<sup>A</sup>T<sub>E</sub>X refused to cooperate. Maybe somebody more versed than me in the inner workings of L<sup>A</sup>T<sub>E</sub>X can figure that one out.

This is the reference line!



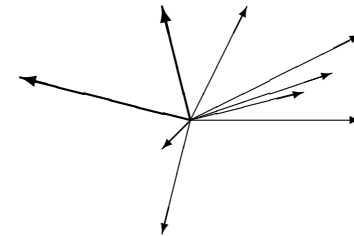
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If the minipages on both sides open with text, the command as used earlier produces the more pleasing result I'd say, by aligning both top lines of the minipages with the reference line. The commands as used on this page are:

```
\begin{minipage}[t] [] [t]{0.33\textwidth}
```

This is the reference line!

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