

5 Chapter 5

5.1 R package: webexercises

Some people are using external R packages like `webexercises`, they will just work out of the box. You load them as usual. I've added an extra function to attach accessibility aria labels to the entry boxes later.

```
```{r}
library(webexercises)
```
```

Warning: package 'webexercises' was built under R version 4.4.3

```
```{r}
To allow injection of aria-labels
in_labelled_fitb <- function(answer, label_text, ...) {
 html <- webexercises::fitb(answer, ...)
 # Insert aria-label into the <input ...> tag
 html <- sub(
 "<input ",
 paste0("<input aria-label=\"", label_text, "\" "),
 html
)
 html
}
```
```

The `webexercises` package also comes with a css and js file, so you typically need to add the following to the `_metadata.yml` in the folder for the file being rendered (or in the global `_quarto.yml`) if you want it literally everywhere.

```
format:
  html:
    css:
      - include/webex.css
    include-after-body: include/webex.js
```

Here's an example someone may recognise.

Example 1

Consider a function taking arguments a , b and c and returning $(a + 2 \times b)^c$, defined as set out below.

```
func <- function(a, b = 0, c = 1){  
  (a + 2 * b)^c  
}
```

Rewrite the calls below into named form (i.e. using `parameter = value`) and give the output of `func` without running it in R.

```
func(1, 2, 3)
```

This is the equivalent to _____ and it returns the value _____.

5.2 Numbas embedding

Another opportunity with HTML is to embed via an `iframe` to some external content.

I have created an extension which makes including `iframes` easier.

You need to first create your Numbas question, then preview it, and click *Download*. This provides a zip file, which you unzip and place the folder into `/resources/numbas/<your-chosen-name>`. Then in the code below you just point to the `index.html` for the question. Questions are of varying heights and widths too, so you can customize it in when you create the `iframe`.

5.2.1 Plain version (no web version)

```
{{< iframe path = "/resources/numbas/Q13/index.html"  
  width = "90%"  
  height = "900px"  
>}}
```

A question appears here in the HTML version.

5.2.2 Version with a hyperlink in the PDF

If you want the PDF version to contain an actual hyperlink then you need to get a link to a website version of your question, like this example below. You could try and always use

this link rather than download approach described above, but then you are dependent on the external website being live at all times.

```
{{< iframe path = "/resources/numbas/Q13/index.html",  
width = "90%",  
height = "900px",  
url = "https://numbas.mathcentre.ac.uk/question/119566/matrix-linear-combination/embed/?token=e221efa1-3a50-429c-bb4a-8c63d2610114"  
>}}
```

[Link to Numbas question](#)

i Note

I inserted the \ symbol in the long url address, to render nicely for you, but users don't normally see it.
When presenting the user never sees the code anyway.

5.2.3 Hiding a Numbas task

An alternative to having a large space-using question, is to hide inside a collapsed box like the following.

Task 1

A question appears here in the HTML version.