HW07 Hints

2. Since $y = W(x)$ if and only if $x = ye^y$, y is a root of the function $f(y) = x - ye^y$ for a given x. Once framed in this way, it is clear what to do with `fzero`.

   Note. MATLAB actually has a built-in function for Lambert's W function; it is named `lambertw`. You may test your code against it. As always, read the documentation using `help lamberw`. You can also read the source code for this function by typing `type lambertw.m` in the Command Window!

3. (a) Theorem 4 of Module 5 is useful.

   (b) Find a relevant example from the live script accompanying Lecture 17.

4. (a) Begin by carefully calculating (by hand) $f'(x)$. Then substitute it into the Newton's iterative formula

$$x_{k+1} = x_k - \frac{f(x_k)}{f'(x_k)},$$

   and go from there.

   (b) Follow the instruction and mimic the analysis presented on p. 32 of Module 5.