

## Week 6 - Student Led Review

Reminder - the best place to learn MATLAB (or anything, really) is the internet! [StackOverflow](#) and MathWorks' own [MATLAB Exchange](#) are filled to the brim with people asking and answering questions about MATLAB. [MATLAB's own documentation](#) is also extensive and extremely helpful. It includes descriptions of how to call functions as well as usage examples.

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### Student Questions

Allow students to ask questions about their own work or previous lessons, and encourage other students to answer them. If no students answer, instructors may then answer.

### Review Questions

Instructors can use the below questions to test the students' understanding.

- Give an example of an anonymous numeric function.
  - `func = @(x) x + 3;`
- How do you define new symbols in MATLAB?
  - `syms`
- What is the difference between symbolic and numeric pi?
  - Numeric pi is an approximation, symbolic pi is pi

Which is *generally* faster, symbolic or numeric computation?

  - Numeric

If I have already called `syms x`, how do I define the cosine function symbolically?

  - `func = cos(x);`
- What function do I use to transfer a symbolic function to a numeric one?
  - `matlabFunction`
- How do I convert a symbolic scalar to a numeric one?
  - `double`

What does it mean when a function uses the `./` operator?

  - It supports element-wise matrix division
- If I need to take the partial derivative of a function, should I define it numerically or symbolically?
  - Symbolically

Write an anonymous functions which calls another function named *mystery* and multiples it by *y*. Pass a value through to *mystery*, but divide it by two before passing.

  - `function = @(mystery_value,y) mystery(mystery_value / 2) * y;`
- Pick an appropriate name for the van Der Waals Equation of State if it is defined symbolically.
  - `sym_VDW`, `VDW_symbolic`, etc.
- Which functions do you use to calculate symbolic and numeric integrals in MATLAB?
  - `int` and `integral`, respectively

`vpa` or variable precision algebra is essentially a black-box implementation of what technique?

  - Iterative solving
- What should you write before syntactically correct code in order to solidify your concept of the workflow?
  - Pseudocode
- When solving with iteration, should we use Numeric or Symbolic functions?
  - Numeric