1. Penelope wants to know the value of $\dfrac{2^6}{23}$, so she types

   ```
   2^6 / 23
   ```

   and presses `Enter`, but nothing happens. What does she need to do to get *Mathematica* to evaluate the expression she has typed in?

   Now Penelope wants to know the value of $\dfrac{2^6 + 5^{1/2}}{23}$, so she types

   ```
   2^6 + 5^(1/2) / 23
   ```

   What is wrong with this?

2. George wants to find some values of the sine function using *Mathematica*. But he keeps making syntactical errors. Help him out by correcting his mistakes.

   ```
   Sin(0)
   ```

   ```
   sin[0]
   ```

   ```
   Sin[pi]
   ```

   In general, predefined functions (like sine) and predefined constants (like π) should start with what kind of letter?

   And to evaluate a function at a specific point (i.e. plug in a number), what kind of parentheses/braces/brackets should be used?

3. Sally wants to find a graph of $x^2 - 4$ on the domain $[-10, 10]$. Which of the following will work?

```
Plot[x^2 - 4, [-10,10]]


Plot[x^2 - 4, {x,-10,10}]


Plot[x^2 - 4, -10 < x < 10]
```

She also wants a scatter plot of the points $(-1, 2)$, $(0, 3)$, $(1, 5)$, $(2, 9)$. Based on what you know about *Mathematica* syntax, which of the following commands do you think might work?

```
ListPlot[(-1, 2), (0, 3), (1, 5), (2, 9)]


ListPlot[{{-1, 2}, {0, 3}, {1, 5}, {2, 9}}]


ListPlot[{(-1, 2), (0, 3), (1, 5), (2, 9)}]
```

In general, what kind of parenthesis/braces/brackets are used for lists and ranges in *Mathematica*?

Some other tricks:

- Pressing `Command+L` on a mac or `Control+L` on a PC is like `2nd Enter` on a graphing calculator, i.e. it will bring up the last command you entered.
- If you want a decimal approximation instead of an exact answer, use the `N` command. For example, if you entered

  ```
  2^6 + 5^(1/2) / 23
  ```

  you would get something like

  `Out[1] =` $64 + \frac{\sqrt{5}}{23}$

  If you then entered

  ```
  N[2^6 + 5^(1/2) / 23]
  ```

  you would get something like

  ```
  Out[2] =   64.0972
  ```

- If you want to use an output from a previous computation, you can use the `Out` command. For example, suppose you wanted to take the output `64.0972` from the previous example and divide it by 11. You could just enter:

  ```
  Out[2]/11
  ```