MEA 712: (An Introduction to) Mesoscale Atmospheric Modeling  
Second mini computing assignment

Due at the start of the next class (Thursday 30 August)

The next mini assignment is to set up a gridded field in your existing FORTRAN code.

1. Set \( \text{NX} \) to 21.

2. Use a \texttt{PARAMETER} statement to set \( \text{DX} \) to 100.0 meters.

3. Assign the values to \( \text{PSI}(I) \) using a \texttt{DO} loop.
   a) the \texttt{DO} loop should run from \( I=1 \) to \( I=\text{NX} \).
   b) we will describe \( \text{PSI} \) via the function
   \[
   \psi(x) = \sin \left( \frac{2\pi x}{1000.0 \text{ m}} \right)
   \]
   Let’s assume that \( I=1 \) has an \( x \) value of 0 meters. Because all of our grid points are evenly spaced at an interval of \( \text{DX} \), hopefully it is therefore clear that \( x = \text{REAL}(I-1) \times \text{DX} \). You can use this form when you code up the equation to assign the values for \( \text{PSI} \), or you can alternatively declare \( x \) as another variable in your code, and define it in the \texttt{DO} loop. Note that we use the \texttt{REAL} card because some FORTRAN compilers treat the product of an integer \( \times \) a real as an integer (not what we want here).

4. Instead of printing “hello world”, have your code print out each value of \( x \) and \( \text{PSI} \) after it has been defined.

5. Print out your code and your printed values and bring them to class to receive credit.