1. DO NOT TOUCH A CALCULATOR! Fill in the blanks:

(a) \( \frac{\sin(0.01) - \sin(0)}{0.01} \approx \ldots \)
(b) \( \frac{\sin(0.419) - \sin(0.418)}{0.01} \approx \ldots \)
(c) \( \frac{\sin(28\pi/1000) - \sin(27\pi/1000)}{\pi/1000} \approx \ldots \)

2. Again with no calculator, fill in these blanks (hint: the idea here is to do the reverse of what you did in the previous problem):

(a) \( \cos(\pi/1000)(\pi/1000) \approx \ldots \)
(b) \( \cos(633\pi/1000)(\pi/1000) \approx \ldots \)

3. Consider the region bounded by:
   - the \( x \)-axis;
   - the line \( x = 0 \);
   - the line \( x = \pi/2 \);
   - the graph of \( y = \cos(x) \).

   Sketch a graph of the region. Now imagine a left sum with 500 rectangles which would estimate the area of this region. Write the first four terms of this sum.

4. Use the idea of problem \#2 to re-write each term of your sum from \#3.

5. What is the area of the region?

6. Find the area under the graph of \( y = 5x - x^2 \) from \( x = 1 \) to \( x = 5 \).

7. Find the area under the graph of \( y = x + e^x \) from \( x = 0 \) to \( x = 3 \).