Calculus   Worksheet #4   Unit 12   page 1   _____
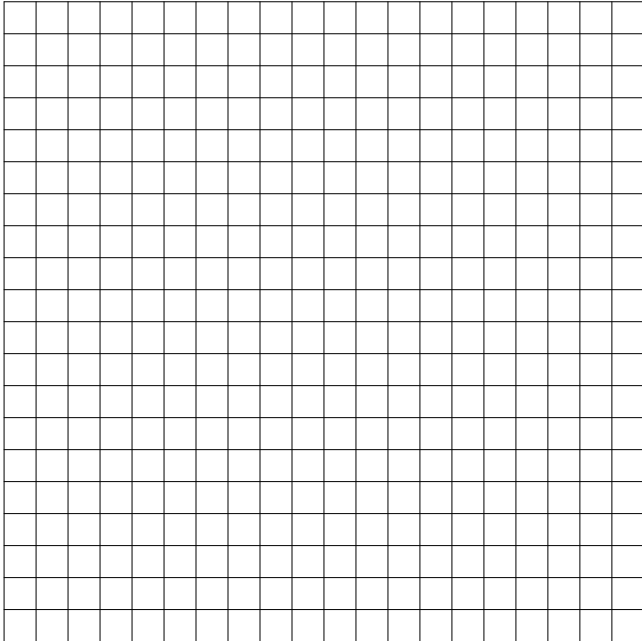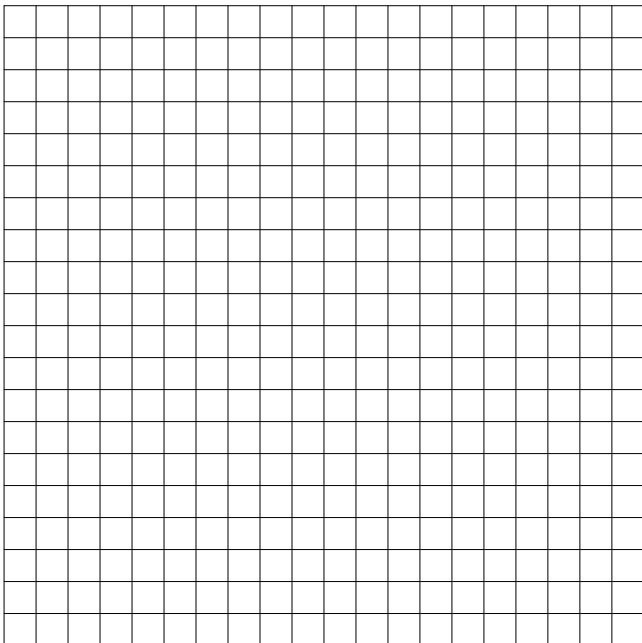
In each of the following problems, you are given a function y = f(x) and two values of x, x = a and x = b. You are to find the length of the graph of y = f(x) from the point (a, f(a)) to the point (b, f(b)). In each case, draw a graph showing the 'curve' from x = a to x = b. Express your answers rounded to 3 significant figures.
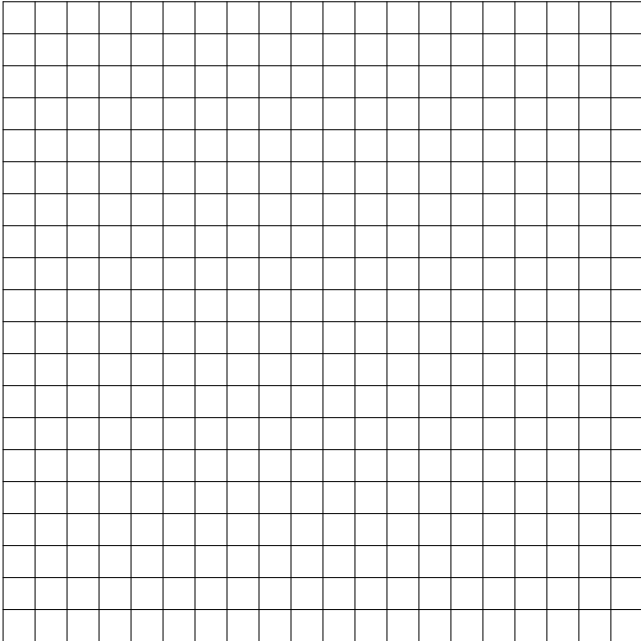
1. $y = f(x) = 4x - x^2$; a = 0 ; b = 4.

2. $y = f(x) = 2\cos x + 2$; a = 0 ; b = π.

In each of the following problems, you are given a function y = f(x) and two values of x, x = a and x = b. You are to find the length of the graph of y = f(x) from the point (a, f(a)) to the point (b, f(b)). In each case, draw a graph showing the 'curve' from x = a to x = b. Express your answers rounded to 3 significant figures.

3. $y = f(x) = e^{0.2x}$; a = 0 ; b = 10.

4. $y = f(x) = \ln x$; a = 1 ; b = e^2.