In class work 1

1. Use the rule given by $f(L) = 7L + \frac{48}{L}$ to find each of the following:

   (a) $f(4)$
   (b) $f(5)$
   (c) $f(x)$
   (d) $f(\sqrt{2})$
   (e) $f(3 + \sqrt{2})$
   (f) $f(3 + h)$
   (g) $f(x + h)$
   (h) $f(\pi^2)$
   (i) $f(x^2)$
   (j) $f(4\pi)$
   (k) $f(4y)$
   (l) $f(6)$
   (m) $f(\frac{8}{7})$

2. Considering the example of the rectangular pen, instead of writing the cost C in terms of the length of the brick side L we could have written it in terms of the width W

   (a) Write an algebraic rule expressing C in terms of W
   (b) What is the domain of the rule in a?
   (c) Write an equation that relates L and W
   (d) Solve that equation for L
   (e) Go back to $C = 7L + \frac{48}{L}$ and replace L by $\frac{12}{W}$ and simplify the expression

3. A farmer was a cow named Minerva. For her he has purchased 1200 feet of fencing to enclose three sides of a rectangular grazing area. The fourth side is bounded by a long barn and needs no fence.

   (a) Suppose the side along the barn is 100 feet. Find the enclosed area.
   (b) Suppose the side along the barn is 400 feet. Find the enclosed area.
   (c) Suppose the side along the barn is 1000 feet. Find the enclosed area.
   (d) Suppose the side along the barn is π feet. Find the enclosed area.
   (e) Write the enclosed area as a function of the length of the side againt the barn
   (f) Find the maximum area possible
   hint: unlike the first example this can be done with no calculus. It is a parabola and the maximum value of a parabola that opens down is the second coordinate of the vertex.