Chapter 1.5: More Trig and Also Some Graphing Puzzles
Calculus I
College of the Atlantic. Fall 2016

1. Make a rough sketch (by hand) of $f(x) = -2\sin(4x) + 3$.

2. Steve Ressel has determined that the yearly population $P(t)$ of lizards on an island is well approximated by:
$$P(t) = 1000 + 120\sin(\frac{\pi}{6}(t-3)) , \tag{1}$$
where t is measured in years since 1980.

   (a) What is the period of the lizard oscillations?

   (b) What is the maximum number of lizards found on the island?

   (c) What is the minimum number of lizards found on this island?

   (d) What year after 1980 does the first minimum lizard population occur

3. Make rough sketches of the following functions. Don't use a calculator. These are tricky, but fun.

   (a) $2^{\sin(x)}$

   (b) $\sin(2^x)$

   (c) $(\sin(x))^2$

   (d) $\sin(x^2)$

   (e) $x^2\sin(x)$