

Chapter 1.5: More Trig Functions

Calculus I

College of the Atlantic. Fall 2021

1. Make a rough sketch of $3 \sin(x - 1)$.
2. Make a rough sketch of $2 \cos(x) + 2$.
3. Solve for x : $\cos(x) = .9$.
4. Solve for x : $\cos(x) = x$.
5. Solve for x : $\cos(x) = 2$.
6. Write a formula for a sine function that has an amplitude of 3, a period of 4 and a value of 2 at $t = 0$.
7. The yearly population $P(t)$ of lizards on an island is well approximated by:

$$P(t) = 1000 + 120 \sin\left(\frac{\pi}{6}(t - 3)\right), \quad (1)$$

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?
8. Make rough sketches of the following functions. Try these without a calculator or computer first. These aren't easy.
 - (a) $2^{\sin(x)}$
 - (b) $\sin(2^x)$
 - (c) $(\sin(x))^2$
 - (d) $\sin(x^2)$
 - (e) $x^2 \sin(x)$