

Trig Functions

1. What is $\cos(0.4)$? Use radians.
2. Write a formula for a sine function that has an amplitude of 3 and a period of 4.
3. What is the period of $\sin(2x + 1)$?
4. What is the period of $\cos(2x + 1)$?
5. What is the period of $\cos(2x + 11)$?
6. Solve for x : $\cos(x) = .9$.
7. Solve for x : $\cos(x) = x$.
8. Write a formula for a sine function that has an amplitude of 3, a period of 4 and a value of 0.7 at $t = 0$.
9. 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?
- (d) What year after 1980 does the first minimum lizard population occur?