

Chapter 1.5: Trig Functions

Calculus I

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1. What is $\cos(0.4)$? Use radians.¹
2. What is the period of $\sin(x)$?
3. What is the period of $\sin(2x)$?
4. What is the period of $\sin(Bx)$?
5. What is the period of $\sin(2x + 1)$?
6. What is the period of $\cos(2x + 1)$?
7. What is the period of $\cos(2x + 744.6)$?
8. Make a rough sketch of $3 \sin(x - 1)$.
9. Make a rough sketch of $2 \cos(x) + 2$.
10. Solve for x : $\cos(x) = .9$.
11. Solve for x : $\cos(x) = x$.
12. Solve for x : $\cos(x) = 2$.
13. Write a formula for a sine function that has an amplitude of 3, a period of 4 and a value of 2 at $t = 0$.
14. The yearly population $P(t)$ of lizards on an island is well approximated by:

$$P(t) = 1000 + 120 \sin\left(\frac{\pi}{6}(t - 2)\right), \quad (1)$$

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 maximum lizard population occur?

¹If you don't know how to get your calculator in radians, seek assistance.