

# Chapter 1.5: Trig Functions

## Calculus I

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1. What is  $\cos(0.4)$ ? Use radians.<sup>1</sup>
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:

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

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?

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