

# Further Applications of Trigonometry

---



Figure 1 General Sherman, the world's largest living tree. (credit: Mike Baird, Flickr)

## CHAPTER OUTLINE

---

- 8.1 Non-right Triangles: Law of Sines
- 8.2 Non-right Triangles: Law of Cosines
- 8.3 Polar Coordinates
- 8.4 Polar Coordinates: Graphs
- 8.5 Polar Form of Complex Numbers
- 8.6 Parametric Equations
- 8.7 Parametric Equations: Graphs
- 8.8 Vectors

## Introduction

The world's largest tree by volume, named General Sherman, stands 274.9 feet tall and resides in Northern California.<sup>[27]</sup> Just how do scientists know its true height? A common way to measure the height involves determining the angle of elevation, which is formed by the tree and the ground at a point some distance away from the base of the tree. This method is much more practical than climbing the tree and dropping a very long tape measure.

In this chapter, we will explore applications of trigonometry that will enable us to solve many different kinds of problems, including finding the height of a tree. We extend topics we introduced in **Trigonometric Functions** and investigate applications more deeply and meaningfully.