

Spring 2025 Laird Homework 1

1. In a right triangle, if one leg is 15 units and the hypotenuse is 17 units, find:
 - (a) The length of the other leg
 - (b) The sine of the angle between the 15-unit leg and the hypotenuse
 - (c) The sine of the angle between the unknown leg and the hypotenuse
2. An equilateral triangle has sides of length 8 units.
 - (a) Find the height of the triangle
 - (b) Find the area of the triangle
 - (c) What is the measure of each angle in radians?
3. Consider a triangle where side $a = 7$ units, angle $A = \frac{5\pi}{6}$ radians, and angle $B = \frac{\pi}{12}$ radians.
 - (a) Find side b and side c
4. In a right triangle, if the angle between the adjacent side and the hypotenuse is $\frac{\pi}{4}$ radians and the opposite side is 6 units:
 - (a) Find the length of the adjacent side
 - (b) Find the length of the hypotenuse
5. In the xy -plane an angle in standard position measures $\frac{\pi}{6}$ radians. A circle centered at the origin has a radius of 10 units. What is the y -coordinate of the point where the terminal ray of the angle intersects the circle?
6. In the xy -plane an angle in standard position measures $\frac{5\pi}{6}$ radians. A circle centered at the origin has a radius of 10 units. What is the y -coordinate of the point where the terminal ray of the angle intersects the circle?