1 Coordinate Geometry

Problem 1. Mark the following points on the grid below: \( A = (0, 0) \), \( B = (6, 2) \), \( C = (4, 5) \), and \( D = (1, 4) \). Now draw the quadrilateral \( ABCD \). What type of quadrilateral is this? Can you prove it? Write an equation for the lines that contain each side of this quadrilateral.
2 Trigonometric Functions

Problem 2. A ladder leans against a wall, touching a window sill, and makes an angle of 62° with the ground. Find the height of the window sill above the ground, and the length of the ladder if the foot of the ladder is 3m from the foot of the wall. (Give your answer in terms of the elementary trigonometric functions.)

Problem 3. Two men stand at points A and B in line with a point F at the foot of a building. A is 50m from F and F is directly under point T at the top of the building. The angle of elevation $\angle FAT$ is 30° and the angle of elevation $\angle FBT$ is 40°. How far apart are the two men? (Assume that the two men are on the same side of the building, and give your answer in terms of the elementary trigonometric functions.)

3 Definitions

Study the following definitions from Sections 8.1 and 8.2 of your textbook before Monday’s class:

1. Area Scaling Principle
2. Circle
3. Circumference
4. Diameter
5. Sector
6. Arc
7. Central angle