# Math-08 Homework #10

<u>Reading</u>

- Text book section 2.1 to 2.3

<u>Problems</u>

1). The corners of a square are given by the following coordinates:

$$(-1, -1), (-4, 5), (2, 8), (5, 2)$$

    a). Determine the equation of the circle inscribed inside the square.

    b). Determine the equation of the line parallel to the side from $(-1, -1)$ to $(5, 2)$ and through the center of the circle.

    c). Determine the equation of the line perpendicular to the side from $(-1, -1)$ to $(5, 2)$ and through the center of the circle.

2). Consider the line through the points (1,5) and (1,-1).

    a). Determine the equation of the line.

    b). Determine the equation of the line parallel to the first line and through the point (-2,-2).

    c). Determine the equation of the line perpendicular to the first line and through the point (-2,-2).

3). An object moving in a straight line at constant velocity has its equation of motion given by: $s = s_0 + v_0 t$, where $s$ is the position at time $t$, $s_0$ is the initial position, and $v_0$ is the constant speed.

    a). What are the slope and y-intercept for this linear model?

    b). An object is moving at 10 ft/s. At time 5 seconds the object is at position $s = 60$ feet. What is the initial position $s_0$?

4). A manufacturing firm buys a new machine for $150,000. After the machine is fully depreciated, it will have a salvage value of $5,000. Assuming a 15-year straight-line depreciation model, what will be the value of the machine after 10 years?