Problem 1

**Given:**

A table of time and odometer readings.

**Find:**

Time intervals, distance, and speed for each time reading.

**Diagram:**

Chart, scatter chart

Description automatically generated

**Theory:**

**Assumptions:**

idk

**Solution:**

first time interval:

first distance 1:

first average speed 1:

Graphical user interface, application

Description automatically generated

Problem 2

**Given:**

Position and time data of a moving ball

**Find:**

The velocity and acceleration of the ball at t=2, 3, 4, 5 and 6 seconds

**Diagram:**

Chart, scatter chart

Description automatically generated

**Theory:**

Forward finite difference:

Backward finite difference:

Center finite difference:

**Assumptions:**

Idk lmao

**Solution:**

Graphical user interface, application

Description automatically generated

Problem 3

**Given:**

A table of distance and air velocity measurements.

**Find:**

The shear stress of a surface at distances y = 0.006, 0.012, and 0.018 meters.

**Diagram:**

**Theory:**

Newton’s viscosity law:

Second order center first finite difference:

**Assumptions:**

Dynamic velocity µ is constant.

**Solution:**

Problem 4

**Given:**

**Find:**

**Diagram:**

**Theory:**

**Assumptions:**

**Solution:**