

Lesson 1

Read Chapter 1 and Chapter 2

Units

Formulas

Constant rate of change

Coordinate systems

Distance formula

Linear motion

- ▶ web page : <https://sites.math.washington.edu/ep2/classes/120/120.html>
- ▶ Math Department page for 120 (math 120 materials website): <https://sites.math.washington.edu/~m120/>
- ▶ email : ep2@uw.edu
- ▶ announcements
- ▶ syllabus
- ▶ Exam dates
- ▶ WebAssign
- ▶ Lectures before /after
- ▶ Worksheet

Word Problems

- ▶ Draw a picture (Ch 2)
- ▶ Identify useful formulas
- ▶ Pay attention to units

Check handouts with Area and Volume formulas

Other formulas :

$$d = vt, \text{ for constant velocity } v$$

$$\text{mass} = \text{density} \times \text{volume}$$

$$\text{total change} = \text{rate of change} \times t, \text{ for constant rate of change}$$

Convert 7857.31 sec into hours, min, sec

Error tolerance in WebAssign

Sarah can bicycle around a path in two hours and 40 min. If she decreases her speed by 1 km/hr her time increases by 4 min. How long is the path ?

Dave has inherited an apple orchard with 60 trees. Each tree yields 12 bushels of apples. For each tree that is removed the yield per tree goes up 0.45 bushels. Find a formula for a function $y(x)$ that gives the total yield of the orchard (NOT the yield per tree) in terms of the number x of trees remaining in the orchard.

In order to set up a coordinate system you need:

- ▶ Origin
- ▶ Axes
- ▶ Units on axes

Distance formula

The distance between $P(x_1, y_1)$ and $Q(x_2, y_2)$ is

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Suppose at time t_1 an object starts moving from $P(a, b)$ with velocity v_x along an horizontal line; its x coordinate at time t is

$$x = a + v_x(t - t_1)$$

Suppose at time t_1 an object starts moving from $P(a, b)$ with velocity v_y along a vertical line; its y coordinate at time t is

$$y = b + v_y(t - t_1)$$

Ann and Bob start moving at the same time from the same location. Ann moves East at 6 feet/sec. Bob moves North at 5 feet/sec.

What is the distance between Ann and Bob 10 sec later ?

When is the distance between Ann and Bob 50 feet ?

Algebra question

Is $\sqrt{x^2} = x$?

Plane 1 leaves city A at 7 am and flies at a speed of 250 mph in a straight line towards city B, located 1000 miles North of city A.
Plane 2 leaves city C located 300 miles East and 400 miles North of city A at 7:30 am and flies West at a speed of 240 mph.
The planes fly at the same altitude. Do they collide ?