

PHYS 211 Homework Assignment

Chapter 1

Problem 1 Convert the following to SI units:

- (a) 4 nm
- (b) 5.8 Mm
- (c) 15 cm/s
- (d) 60 miles/hour

Problem 2 Set up the following problem, but *do not* solve. A student realizes that they are about to be late for their exam and sprints off towards the classroom at a velocity of 4.3 m/s. When they are within 5 meters of the classroom they begin to slow down. What acceleration (negative) must they have in order to stop before running into the classroom door? Do the following steps:

- (a) Draw a picture
- (b) Establish a coordinate system on the picture
- (c) Define symbols
- (d) List knowns and unknowns

Problem 3 Set up the following problem, but *do not* solve. A sleeping dog suddenly smells the aroma of a Bar-B-Que from next door. Jumping to his feet and accelerating at 1 m/s^2 , how long will it take him to reach the food 10 meters away? Assuming constant acceleration the entire time, what will be his speed when he arrives? Do the following steps:

- (a) Draw a picture
- (b) Establish a coordinate system on the picture
- (c) Define symbols
- (d) List knowns and unknowns

Problem 4 Text layouts are measured in points (think 12 point font). However, 12 points is equal to 1 pica, and 6 picas is equal to 1 in. If a figure in a text book is misplaced by 0.30 cm, how big is this mistake in

- (a) points?
- (b) picas?

Problem 5 The distance between our solar system and the closest star Proxima Centauri is 4.24 light-years. How far is this in inches?