From Maroon book Chapter 2

TEST FRIDAY

22. Three students use a meterstick to measure the width of a lab table. One records a measurement of 84 cm, another of 83.8 cm, and the third of 83.78 cm. Explain which answer is recorded correctly.

23. Two students measure the speed of light. One obtains $(3.001 \pm 0.001) \times 10^8$ m/s; the other obtains $(2.999 \pm 0.006) \times 10^8$ m/s.
a. Which is more precise?
b. Which is more accurate?

24. Why can quantities with different units never be added or subtracted but can be multiplied or divided? Give examples to support your answer.

33. Rank the following mass measurements from smallest to largest: 11.6 mg, 1021 μg, 0.000 006 kg, 0.31 mg.

36&37: Round according to sig fig rules!

36. Add or subtract as indicated.
a. 16.2 m + 5.008 m + 13.48 m
b. 5.006 m + 12.0077 m + 8.0084 m
c. 78.05 cm^2 − 32.046 cm^2
d. 15.07 kg − 12.0 kg

37. Multiply or divide as indicated.
a. $(6.2 \times 10^{18}\ m)(4.7 \times 10^{-10}\ m)$
b. $(5.6 \times 10^{-7}\ m)/(2.8 \times 10^{-12}\ s)$
c. $(8.1 \times 10^{-4}\ km)(1.6 \times 10^{-3}\ km)$
d. $(6.5 \times 10^{5}\ kg)/(3.4 \times 10^{3}\ m^3)$

Chapter 2&3 Test Friday

1. Scientific notation + math with sci. not
2. Metric, mks, fund. vs derived, unit conversion
3. Sig fig counting
4. Math with sig fig rounding
5. Precision vs. accuracy; dependent and independent vars.
6. Uncertainty; worst case volume calculation
7. read a caliper
8. Math relationships and graph types
9. equation solving
10. Vector vs. Scalar
11. Identifying vectors and scalars
12. Displacement vs. total distance

From Chapter 3: look over pages 44-59 in maroon book

13. When can a football player be treated as a point particle?

14. When you enter a toll road, your toll ticket is stamped 1:00 P.M. When you leave, after traveling 55 miles, your ticket is stamped 2:00 P.M. What was your average speed in miles per hour? Could you ever have gone faster than that average speed? Explain.

15. Does a car that's slowing down always have a negative acceleration? Explain.

16. A croquet ball, after being hit by a mallet, slows down and stops. Do the velocity and acceleration of the ball have the same signs?

Solve for m

1. $R = \frac{m}{p}$

2. $R = \frac{a}{m}$

3. $T = 2 + \frac{b}{m}$

4. $T = 2(m+b)$

5. $W = \frac{m^2}{b}$

6. $T = 2\pi\sqrt{\frac{m}{b}}$

7. $K = \frac{1}{2}mv^2$

8. $p = \frac{2x}{m^2}$

Name_____ Chapter 3 Physics

Pre:

Equation for average velocity:

Average Velocity Problems

Solve problems **showing equation with substitution with units**:

1. Kellianne drives her Harley 200. Km South in 2.5 hours. What is her average velocity in km/hr?

2. Ben and Kyle drive 50 km North of Rhinebeck, then turn around and drive 100 km South. The entire trip lasts 3 hours.

What total distance did they travel?

What was their overall displacement?
(include direction)

Figure out their average speed:

Figure out their average velocity:

3. Mr. B gets on the Thruway at Kingston at heads toward Albany for a a knarly ***VEKTOR*** concert. He gets hungry and stops at Roy Rogers for some grub. He then gets back on the road so he can make it in time to buy a T-shirt before the show.

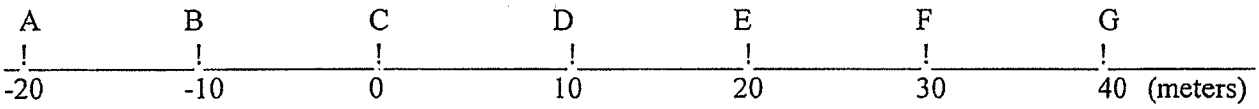
In general, compare Mr. B's average velocity to his instantaneous velocity(which one varies, etc.):

What would he use and do to determine his average velocity?

How could he determine his instantaneous velocity?

4. Summer runs at an average velocity of 4.0 m/s over a distance of 320.0 meters. How long does this take?

5. Use the number line to answer the following questions:



Calculate the displacements:

Start end

C to E _____

G to D _____

G to B _____

B to G _____

D to A _____

6. **Circle the vectors,** *box the scalars*

Volume	Velocity	Mass	Temperature	
Energy	Time	Speed	Acceleration	
Force	Energy	Density	Distance	Position