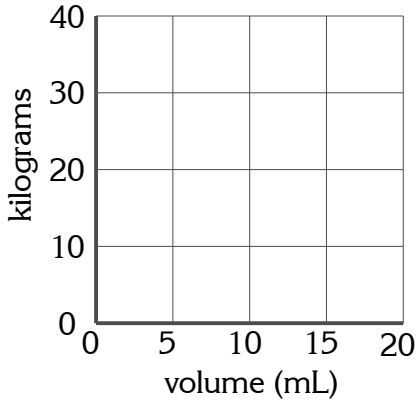
Name: _____ Period: _____ Date: _____

Unit 1 Review Questions (15 pts)

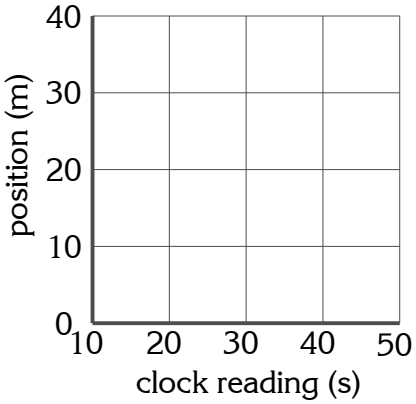
Setting up graphs

Most of these empty graphs have an error in their setup: something about their scales or their labels. For each graph, find and circle the error. If there's no error, write "OK" on it.

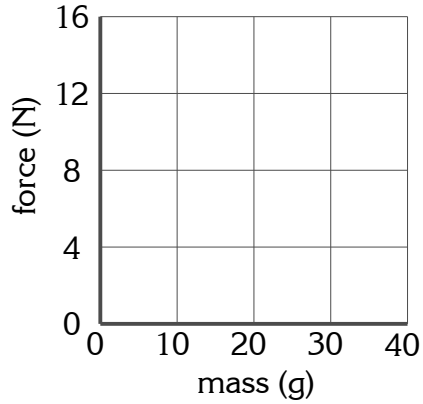
1.



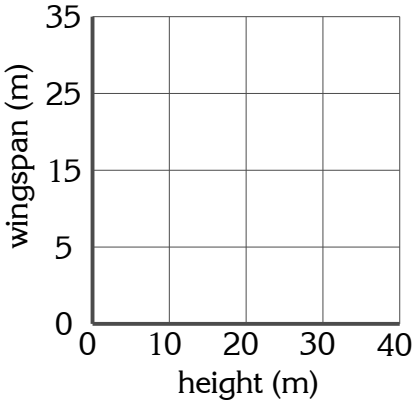
2.



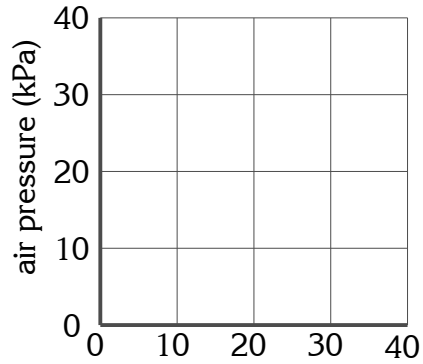
3.



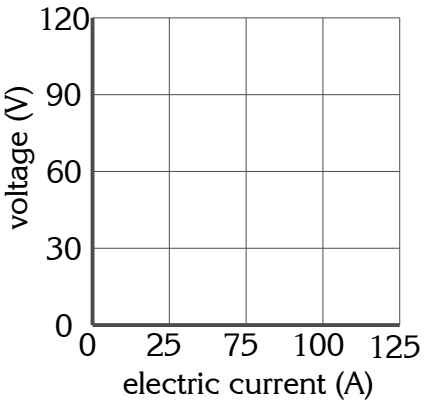
4.



5.

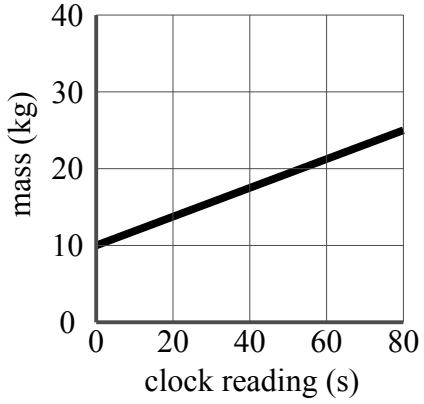


6.

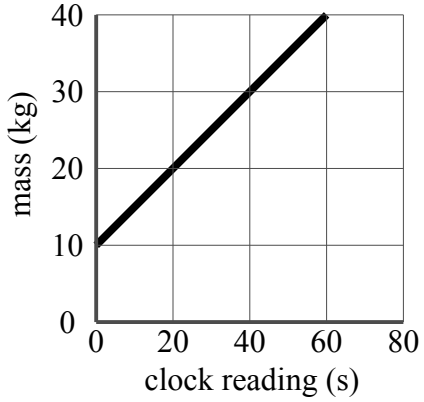


Slopes of lines

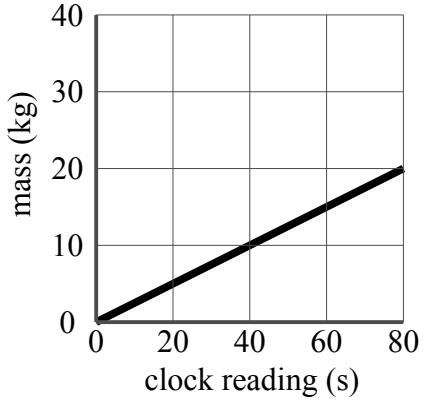
1. Find the slope of this line.



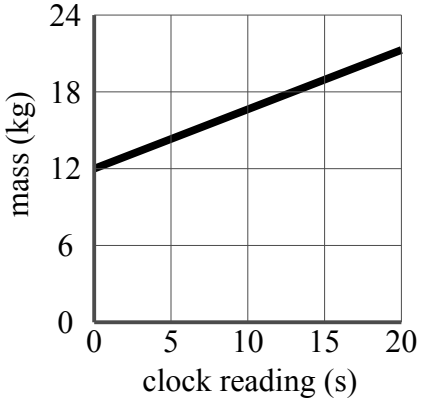
2. Find the slope of this line.



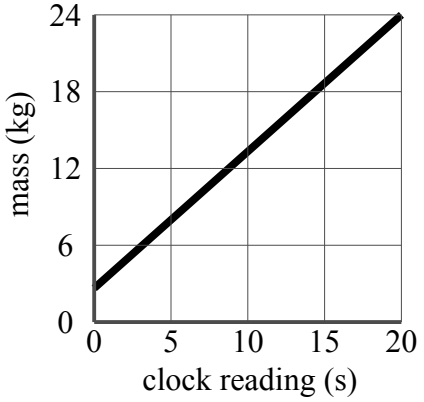
3. Find the slope of this line.



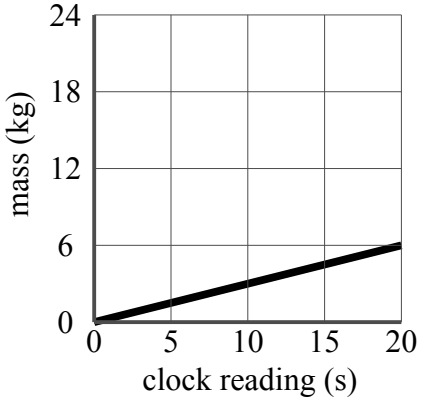
4. Find the slope of this line.



5. Find the slope of this line.



6. Find the slope of this line.



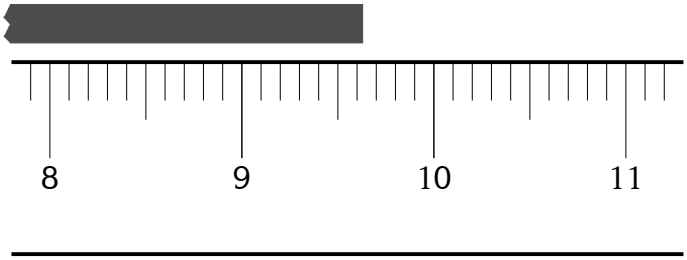
Precision, accuracy, and measurement

7. Rank these four measurements from the least precise to most precise by writing them into the blanks below: 0.9 m, 1.451 m, 13.02 m, 500 m.

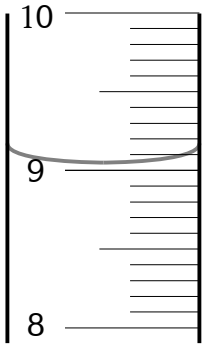
   Least Precise _____ < _____ < _____ < _____ Most Precise

8. Mr. Stonebraker once worked with a teacher who cut the first few centimeters off of a meter stick and left that stick out with the regular ones. If a student used this stick without noticing, all of their measurements ended up being a few cm too long. Compared to a regular meter stick, would measurements with this cut-off meter stick be less accurate, less precise, or both? Explain your answer.

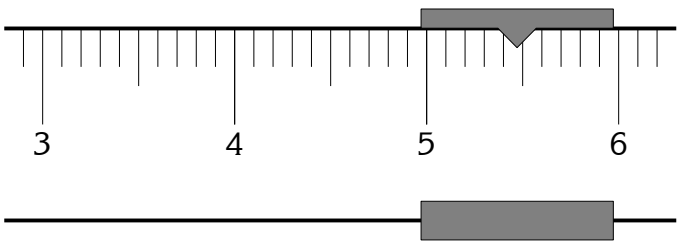
9. Read this section of a ruler to the correct level of precision by estimating one extra digit. The numbers on the ruler are in centimeters.



10. Read this section of a graduated cylinder to the correct level of precision by using the bottom of the curved meniscus and estimating one extra digit. The numbers are in mL.



11. Read this section of a triple-beam balance to the correct level of precision by estimating one extra digit. The numbers on the balance are in g.



Unit conversion using factors

For these problems, use your reference sheet which shows measurements that are the same size to construct conversion factors for these units. You do not need to actually do a calculation – just write the conversion factor you would use.

(Although the reference sheet only talks about units of length, you can use it for other metric units too. The prefixes mean the same thing no matter what base unit they're attached to. For example, the sheet says 1 meter is the same as 1,000 millimeters. That also means 1 gram is the same as 1,000 milligrams and 1 liter is the same as 1,000 milliliters.)

12. kilometers to meters

13. liters to milliliters

14. centimeters to meters

15. micrograms to milligrams

For these problems, write a conversion factor and use it to do the conversion that is described.

16. Convert 3.5 m to mm.

17. Convert 15 kg to g.

18. Mr. Stonebraker's desk is as long as 9 textbooks. If Stonebraker's car is 1.6 desks long, how many textbooks long is the car?

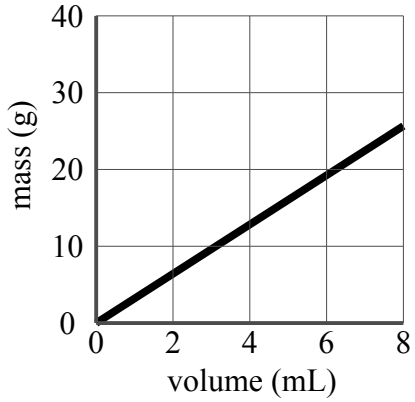
19. 10 pennies have the same mass as 11 dimes. Suppose a comic book's mass is 23 pennies. Convert that mass into dimes.

Density: How much stuff there is in a certain space

20. A piece of metal has a mass of 84.2 g and a volume of 9.9 mL. What is its density?

21. Use your reference sheet of densities to identify the metal from the last question.

22. What is the density of the substance in this graph?



23. If a piece of balsa wood (density 0.2 g / 1 mL) has a mass of 31 g, what would its volume be?

Flotation

24. Look at your list of densities. Of the three woods listed, which ones would float on water?

25. Of the three woods listed, which ones would float on syrup?

26. Suppose you have two objects that are the same size (that is, the same volume). Object A floats in water, but Object B sinks. What can you say about the objects' densities?