A.P. Physics 1 - Summer Assignment - Chapter 1 of the Text

The Word Document is to be E-mailed to kirkphelps@catholicmemorial.org By August 25th.

**Be sure to rename the file with your name so that when I save it, the file has a unique name.**

The Problems are due the first day of actual class.

The text can be found at:

https://openstax.org/details/college‑physics‑ap‑courses#resources

It is available as a: PDF Download - free

I Pad download version - $20

Actual text - $60

Answer the following statements/questions by replacing the blanks as you read the text of Chapter 1. As a Word Document you can type directly into it. You can adjust or eliminate the underlines as you work. Answers to questions should be in full sentences and follow right after the question.

1. Where does the study of Physics start?

 and where does it lead to?

2. What is natural philosophy?

3. Physics is concerned with the description and interaction of , ,

 and .

4. What describes the realm of Physics?

5. Give two examples of the application of physics:

1.

2.

6. The Laws of Nature are

7. What constitutes a Law ?

8. What did Sir Isaac Newton do to coins to stop thieves take some of the silver?

9. “The models, theories, and laws we devise sometimes imply”

 But then they must be With

10. List the steps in the scientific method as described:

11. Define Classical Physics and Modern Physics being sure to express the differences .

12. Define a physical quantity:

13. Fill in the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| Length | Mass | Time | Electric Charge |
|  |  |  |  |

14. Why do we want Microscopic Standards?

15. A conversion factor is

16. In setting up the conversion factor (ratio which is a fraction) you want the unwanted

 unit to out. - See sample (1.1) page 19.

17. What is the nonstandard unit **firkin** ?

18. What is a derived unit? Give an example.

19. Explain the difference between Accuracy and precision.

20. What is uncertainty?

21. What 4 factors contribute to uncertainty in a measurement?

1.

2.

3.

4.

22. What is the significance of the δ in A ± Aδ on page 24?

23. When measuring uncertainty of a product what do you do with the uncertainty of the parts you are

 multiplying?

24. In Significant Figures (Sig.Fig.), when do zeros count and when don’t they?

25. What is the rule for Sig. Fig. In addition/subtraction?

26 What is the rule for Sig. Fig. In multiplication/Division?

27. In general, the text will use how many Sig.Fig.?

28. What is wrong with the following 10/3.0 = 3.3333333 which came out of my calculator?

**PROBLEMS**: Problem should be done on loose leaf in either pen or pencil.

 When doing problem you must show work however simple. Do problems 1 to 33:

**In numbers 1-10**, be sure to show the ratio used for each conversion.

1.00 hr = 60.0 min 1.00 min = 60.0 sec

1.00 m = 3.281 ft 1.00 m = 39.37 in

1.00 km = 3281 ft

1.00 in = 2.54 cm Each conversion is significant to 3 digits

**In numbers 11 to 28**, express your answers to the problems in the correct number of Sig. Fig. With proper units.

**In numbers 29 to 36**, make an initial approximation using only what you know on first reading the question then research the significant data needed to do a more accurate approximation. Note your sources of information.

(Example: #29 - heartbeats in a life time = make an immediate guess . Then look up the average life expectancy noting details such as male or female; US or China; and make a more educated approximation).