

AP Physics 1 Summer Course Pack

In Preparation for the 2017-18 Academic Year

Welcome to AP Physics 1! We look forward to a fun, challenging and rewarding year ahead with each and every one of you.

Please be certain to pick up the following textbook before you head home for the summer. You will need it in order to complete some of your summer work.

Knight, Jones and Field, College Physics: A Strategic Approach – AP Edition, 2014.

Although AP Physics 1 is taught with an approach to develop strong conceptual foundations in a variety of physics topics, we will be using algebra, geometry and a bit of trigonometry throughout the school year in order to strengthen and support that objective. The areas of mathematics seen below will be very helpful to review prior to the start of the school year, so that we won't need to take up valuable class time revisiting these prior skills. Please go through each and every website, spending time reviewing these skills so you are thoroughly prepared to utilize them as needed throughout the course. In addition, you are being asked to read Chapter 1 in your textbook in order to gain some pertinent background information related to the physics of motion – which will be the basis for our first unit of study.

After reviewing each topic, answer the questions provided. While you may wish to begin work on this in June or July, we do ask that you either review it in August – or wait to begin it until then. That way, the material will be fresh in your mind when we meet in September. We will discuss any questions that you have on the first day of school. You should expect a quiz on this material on day two.

If you have any questions over the summer regarding this packet, or the course in general, please do not hesitate to contact us at: elsnerk@royaloakschools.org (Mrs. Elsner) or murawskin@royaloakschools.org (Mrs. Murawski).

There is a Mathematics Review section in Appendix A at the end of the text for your reference, in addition to many of the math topics listed below being discussed in Chapter 1 of your textbook. Also, helpful websites have been provided to assist you in reviewing these skills. Please note that the Math is Fun pages each have practice problems at the bottom for you to test your knowledge of these areas of mathematics.

~Mrs. Elsner and Mrs. Murawski

Topics to Review

I. Trigonometry

<https://www.mathsisfun.com/algebra/sohcahtoa.html>

<https://www.mathsisfun.com/sine-cosine-tangent.html>

II. Systems of Linear Equations

<http://www.mathsisfun.com/algebra/systems-linear-equations.html>

III. Scientific Notation

<http://www.mathsisfun.com/numbers/scientific-notation.html>

IV. Exponents

<http://www.mathsisfun.com/exponent.html>

V. Graphing/Slope Calculations/Equations of Lines

<http://www.coolmath.com/precalculus-review-calculus-intro/precalculus-algebra/01-graphing-slopes-of-lines-01>

http://www.mathsisfun.com/equation_of_line.html

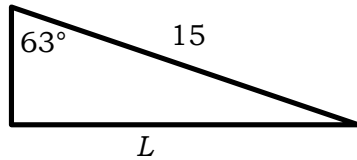
VI. Unit Conversions

<http://www.mathsisfun.com/measure/unit-conversion-method.html>

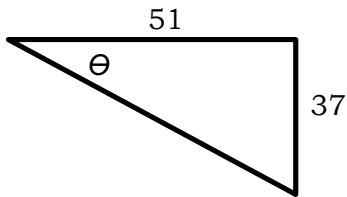
VII. Chapter 1 in Text – Read prior to answering the following questions.

Questions: Please show all work and circle your final answers.

1. Solve for the missing side L .



2. Solve for the missing angle θ .



3. If $\cos \theta = 0.354$, what is the value of θ ?
4. If $2x + 7y = 45$ and $5x - 4y = 17$, what are the values of x and y ?
5. If $4p - r = 10$ and $2p = 12 - 2r$, what are the values of p and r ?
6. Write the number 23,450,000,000 in proper scientific notation.

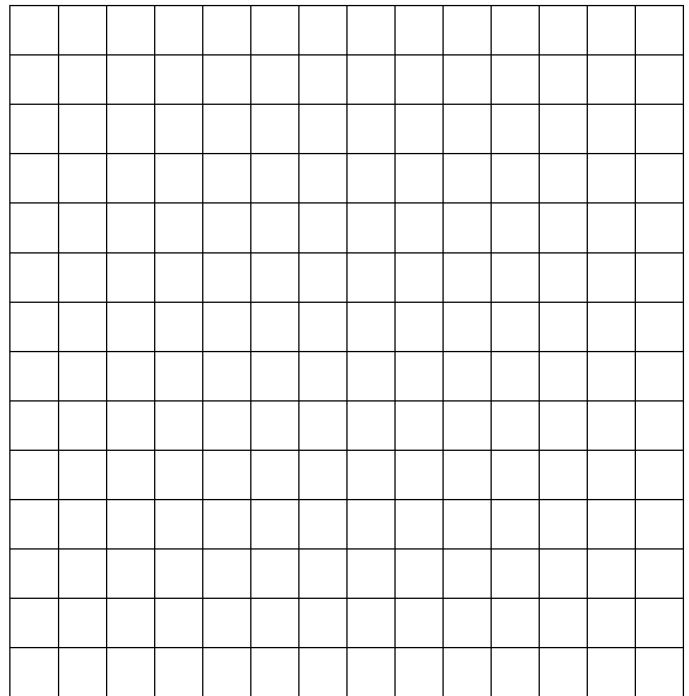
7. Write the number 5.03×10^{-5} in decimal notation.

8. Simplify $p^5 \times p^7$?

9. Simplify $\frac{6 \times 10^3}{2 \times 10^9}$ without the use of a calculator.

10. Graph the following data on the grid provided. Draw the line of best-fit.

Time	Position
0.5	2.3
2.7	13.7
4.8	25.0
7.2	34.8
10.1	49.6
11.5	58.1
13.6	69.5



11. Calculate the slope of the line in question 10.

12. Compute the equation of the line from question 10.

13. How many liters are in 237 kL?

14. How many millimeters are in 5.67×10^{-5} m?

15. How many meters per second is equivalent to 28 km/hr?

16. What is the difference between a scalar and a vector quantity?

17. Give an example where the distance and the displacement of an object are the same.

18. Give an example where the magnitudes of speed and velocity of an object are different.

19. Explain how would you answer **Stop to Think 1.1** on page 4 in your textbook?

Submitted by Nicole Murawski murawskin@royaloakschools.org

20. Explain how would you answer **Stop to Think 1.7** on page 20 in your textbook?