2018 AP Physics Summer Assignments
Welcome to AP Physics 1! This is a college level course that can be interesting, fun, and will challenge you in ways you have never experienced. Are you up to the challenge?

These Summer Assignments will blend to count as your first major grade of the course.

Intro Session (due June 16th)
- Complete the Intro Survey then do the Physics Pretest on Canvas
- Sign up for the AP Physics EDpuzzle course and complete the first 3 videos. The join code is: azBVz2
- Click here to sign up for GroupMe texting for the course to keep in the loop
- Participate in the first 2 Canvas discussions (scored according to the rubric found on Canvas)

You will need the following beginning on Day One of the course, so get everything now and use it over the summer
- Scientific or Graphing Calculator
- Composition Notebook for labs and homework. Put your name on the front cover in marker.
- 3-ring binder (1.5” recommended)
- Pencils/pens and dry-erase markers

It is very important that you do the summer assignments individually so that you have a good foundation at the beginning of the course in August. Not doing everything as prescribed will put you well behind your classmates and it will be difficult to catch up!

These assignments will take time. Read all notes and complete all assignments by the due dates. Check your email and Canvas regularly over the summer for important announcements pertaining to the course. Procrastination will make things much more difficult. If you have difficulties, contact Mr. Eberly!

Complete the Intro Session by Saturday June 16th (10 percent)

All Summer Session #1 assignments are due to Canvas by Saturday July 21st (40 percent)

All Summer Session #2 assignments are due to Canvas by Wednesday August 15th (40 percent)

EDpuzzle videos completed on time throughout the summer (5 percent)

Signed course forms are due the first day of school (August 20th, 2018) (5 percent)
PHYSICS LABORATORY NOTEBOOK (print and paste this in the front cover of your composition notebook)
TITLE EVERYTHING! IF IT'S HOMEWORK, LABEL THOROUGHLY AND SHOW WORK.
FOR LABS:
PROCEDURES:
1) All entries should be orderly AND legible. Do prelab and procedures before lab day when possible.
2) Number all pages in the lab book consecutively in the top corner. Use both sides of each page. Pages should NEVER be torn out.
3) Reserve the first 2-3 pages for the Table of Contents (TOC). List the lab title & pg #’s in the TOC.
5) Begin each new lab on a separate page. USE YOUR NOTEBOOK DURING LAB.
6) It is permitted to print from the physics guide and tape into your notebook if you prefer or handwrite.

Here are some guidelines to help you stay organized (not requirements):

<table>
<thead>
<tr>
<th>Left Page “work”</th>
<th>Right Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>procedure, sketch, observations, notes, equipment identification, calculations, anything that happens or changes during the lab, question statements.</td>
<td>title, date, partners, purpose, data table, graph(s), mathematical model (equation from graph), written statement, question answers, and final results</td>
</tr>
</tbody>
</table>

CONTENT FOR EACH LAB
· TOC update
· TITLE, DATE, PARTNERS
· PRELAB/POSTLAB NOTES: Take notes during pre-lab and post-lab discussion.
· OVERVIEW/PURPOSE
· DRAWINGS/DIAGRAMS: Sketch your set-up (so you can recognize the lab at a glance).
· PROCEDURE
  o Do 3-5 repetitions if time allows
· PERSONAL ACCOUNT/OBSERVATIONS: Record observations you make as the experiment proceeds
· DATA TABLES
  o Neat & Boxed; Easy to Read & Interpret
  o Labeled with variable names AND units at the top of the column
  o Include columns for ALL calculated data (show a sample calculation)
· GRAPH
  o Titled & Labeled (variable symbols AND units)
  o A statement describing the relationship between variables based on the shape
· MATHEMATICAL MODEL
  o Linear Regression stats: from “y=m*x+b”
  o What does the slope represent? (This usually involves unit analysis.)
  o What does the y-intercept represent? What does the area under the curve represent?
  o Can you determine a general model for this lab? (Model means equation from the graph)

CONCLUSION & QUESTIONS: Describe the skills learned, the information learned and some future applications to real life situations.

The notebook will be graded according to completion throughout the course.
**Graphical Methods-Summary** (print and paste this in the back cover of your composition notebook)

From *Modeling Instruction in High School Physics* materials

A graph is one of the most effective representations of the relationship between two variables. The independent variable (one controlled by the experimenter) is usually placed on the x-axis. The dependent variable (one that responds to changes in the independent variable) is usually placed on the y-axis. It is important for you to be able interpret a graphical relationship and express it in a written statement and by means of an algebraic expression.

<table>
<thead>
<tr>
<th>Graph shape</th>
<th>Written relationship</th>
<th>Modification required to linearize graph</th>
<th>Algebraic representation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Graph 1" /></td>
<td>As x increases, y remains the same. There is no relationship between the variables.</td>
<td>None</td>
<td>y = b or y is constant</td>
</tr>
<tr>
<td><img src="image2" alt="Graph 2" /></td>
<td>As x increases, y increases proportionally. Y is directly proportional to x.</td>
<td>None</td>
<td>y = m*x + b</td>
</tr>
<tr>
<td><img src="image3" alt="Graph 3" /></td>
<td>As x increases, y decreases. Y is inversely proportional to x.</td>
<td>Graph y vs 1/x or y vs x(^{-1})</td>
<td>y = m*(1/x) + b</td>
</tr>
<tr>
<td><img src="image4" alt="Graph 4" /></td>
<td>Y is proportional to the square of x.</td>
<td>Graph y vs x(^2)</td>
<td>y = m*x(^2) + b</td>
</tr>
<tr>
<td><img src="image5" alt="Graph 5" /></td>
<td>The square of y is proportional to x.</td>
<td>Graph y(^2) vs x</td>
<td>y(^2) = m*x + b</td>
</tr>
</tbody>
</table>

- When you state the relationship, tell how y depends on x (e.g., as x increases, y...).
- Don’t forget to replace X and Y with the variables from your experiment. (e.g. if you have a linear v(t) graph then as time increases, velocity increases proportionally so v is proportional to t.)
Buy a composition notebook and put your name in marker on the outside front cover. Glue the page titled “PHYSICS LABORATORY NOTEBOOK” inside the front cover and “Graphical Methods-Summary” in the back cover. Leave the first 3-4 pages in your notebook blank for the Table of Contents.

For all assigned problems that you do in your notebook during the entire course, copy the question and draw any figures pertaining to each question before answering so the notebook can stand on its own. Show your work for everything. Also, procrastination is almost guaranteed to raise your stress and lower your performance and grade (so get started now). Having your notebook ready to record data on lab day is a good strategy to lower stress and raise your grade.

**Summer Session #1 Assignments due 7/21/2018:**

This document contains notes, links, and problems. Complete the following summer session #1 assignments on or before 7/21/2018. Each assignment that goes in your composition notebook needs to include a title and all questions copied and work shown, not just answers. The bold-italicized from the list is graded. Refer to Canvas for rubrics and scoring guidelines and e-mail me with questions/concerns:

- Take the Physics Pretest before beginning Session #1 Assignments (graded for completion)
- Read “Using Math and Communicating in Physics” notes (next page)
- **Watch the video “Solving vs. Calculating” on EDpuzzle**
- Complete Problems #1-7 from pg 5 in your Composition Notebook
- **Watch the video “Solution for #7” on EDpuzzle**
- Read “Communicating in Physics” and “Solving Equations Review” notes / visit website
- Complete pg 7 problems #8-12 in your Composition Notebook
- **Complete and Submit “Journal Assignment #1” to Canvas (refer to Canvas rubric)**
- Read “Some Geometry Basics” notes and visit the corresponding web-sites
- Complete pg 8 problems #13-20 in your Composition Notebook
- Read “Graphing data” notes / visit websites / practice graphing in your notebook
- **Complete and Submit “Journal Assignment #2” to Canvas (refer to Canvas rubric)**

**Summer Session #2 Assignments due 8/15/2018:**

Complete the following on or before 8/15/2018. The bold-italicized from the list is graded. Refer to Canvas for rubrics and scoring guidelines and e-mail me with questions/concerns:

- Read “Units and the Metric System Notes” and visit the corresponding web-sites
- **Watch the video “Units and Quantities” on EDpuzzle**
- Complete pg 11 Unit Conversion Practice problems #21-25 in your composition notebook
- Complete the “Virtual Lab: Graphing with Online Simulation” from pg 12 in your composition notebook
- **Complete and Submit “Journal Assignment #3” to Canvas (refer to Canvas rubric)**
- Skim through the web-sites pertaining to SOHCAHTOA
- **Watch the video “SOHCAHTOA” on EDpuzzle**
- Complete pg 13-14 problems #26-35 in your composition notebook
- **Complete and Submit “Journal Assignment #4” to Canvas (refer to Canvas rubric)**
Summer Session #1 Assignments (all Session #1 Assignments are due by July 21st, 2018):

Using Math and Communicating in Physics

One of the reasons math exists is to explain what happens in real life. Math helps us figure out difficult things in physics. If your first reaction to a math situation is to pull out your calculator and plug in numbers, you may be doing more work than you need to do in this class. “Calculator last” is almost always more efficient. And showing your work on paper is valuable because it helps to track down mistakes if you make them.

Solving an equation is not necessarily the same thing as calculating a number. In AP Physics, our strategy is on making, using, and understanding an equation often with lab data and a graph, not just the numbers involved. We’ll practice that during the course but first let’s review some Algebra.

Watch the video “Solving vs Calculating” on EDpuzzle. Then complete the following by hand in your composition notebook. (Copy the questions before answering and show work).

1. Given: \( x + y = z - 4 \)
   Find: solve for \( x \)

2. Given: \( 13x^2 + 13y = 39 \)
   Find: solve for \( y \)

3. Given: \( 19x + 13y + 42t + 16x^2 = 14y + 19x \)
   Find: a) solve for \( y \)
   b) solve for \( t \)

4. Given: \( d_i = d_i + \frac{1}{2}(v_i + v_f)t \)
   Find: a) solve for \( t \)
   b) solve for \( v_i \)

5. Given: \( v_f = v_i + at \)
   Find: a) solve for \( a \)
   b) solve for \( v_i \)

6. Given: \( Ft = p_2 - p_1 \)
   Find: a) solve for \( p_2 \)
   b) solve for \( t \)

7. Algebra simplify example: Like in any physics example, you can work this math problem in multiple ways. You may be accustomed to using your calculator first. Use simplification first for this one and see what happens.

   Given:

   \[
   \begin{align*}
   a &= b \\
   b &= c/2 \\
   c &= d/14 \\
   d &= e^2 + f^{14} \\
   e &= f^7 \\
   f &= z \\
   z &= (14q)^{1/14}
   \end{align*}
   \]

   Find:

   a) \( a \) if \( q = 9.81 \)
   b) \( b \) if \( q = 238.0289 \)
   c) \( a \) if \( q = 1 \)
   d) \( c \) if \( q = 6.02 \times 10^{23} \)
   e) \( a \) if \( q = -273.15 \)

After you have attempted #7, watch the video “Solution for #7” on EDpuzzle.
**Communicating in Physics**
During this course, how you approach and communicate problems is often more important than finding the “correct” answer. AP Physics is more about understanding rather than calculating.

As you develop your personal style of solving problems in Physics, you will try new things and sometimes you might not know where to start. If stuck, maybe you could start with something like this:

Break the situation down:
1. Look at the information and choose how to setup the problem. What type of problem is it?
2. Set up the problem / put together equations / create or interpret graphs if necessary
3. Solve and simplify, calculate if asked
4. Interpret whether the answer makes sense, double-check for errors

By approaching physics situations in this manner, you will take less time and get things right more often. You also communicate clearly so someone else can see your thought process. Another benefit of formatting your work this way on paper is that it helps to track down mistakes.

On free-response questions on the AP Physics Exam, you will be expected to explain what you are doing thoroughly so others can follow your thought process and can see you know your stuff. Get into the habit of recording your thought process now and explaining everything clearly in your composition notebook.

**Solving Equations Review**
In Physics, some problems are not solvable if you plug in numbers too soon. How do you do it then? By using Algebra to boil things down with letters first and then use the numbers if you are asked to.

Often problems on the AP exam are done with variables only that are not always “x” or “y”. The math process is exactly the same, though. Don’t let the different letters confuse you – use Algebra as though they were numbers.

First, review this example: [www.mathpapa.com/calc/tutorial/solving-systems-of-equations/](http://www.mathpapa.com/calc/tutorial/solving-systems-of-equations/)

Then complete problems #8-12 that are found on the next page in your composition notebook. (Copy the equations before answering)
Complete the following problems in your composition notebook after viewing the mathpapa website mentioned on the previous page. Every time you see a formula letter, you solve it just like you do for x and y. Copy the equations for each before you complete.

8. \( x = 5y + 13 \)  
   \( x = 28 \)  \( \rightarrow \) solve for y (meaning get y by itself): \( y = \) _______  
   then plug in what x equals and calculate y.

9. \( 2x + y = 6 \)  
   \( x - 3y = -11 \)  \( \rightarrow \) solve the 1st for y and call it equation #1: \( y = \) _______  
   solve the 2nd for x and call it equation #2: \( x = \) _______  
   Plug what y = from equation 1 into equation 2. Calculate x.  
   Plug in what you calculated for x into equation #1. Calculate y.

10. \( x - 3z = 2z \)  
    \( x = z + 6 \)  \( \rightarrow \) Go through the process to calculate both x and z.

11. \( v = \frac{d}{t} \)  
    \( v = 18 \)  
    \( t = 3 \)  \( \rightarrow \) solve for \( d = \) _______  
    Plug in the numbers to calculate \( d = \) _______

12. \( F = ma \)  
    \( F = \frac{p}{t} \)  
    \( m = 5, p = 48, t = 8 \)  \( \rightarrow \) use the first equation to solve for \( a = \) _______  
    use the values given to calculate \( a = \) _______

Journal about your experience in physics so far. Answer the questions found on Canvas for this assignment (Journal Assignment #1). Include pictures of your completed composition notebook pages in your journal entry. Refer to the Canvas Rubric for scoring guidelines.
Some Geometry Basics
Visit the following websites and skim the information.
https://www.mathsisfun.com/geometry/area.html
http://www.mathsisfun.com/geometry/circle.html

Review the definition of tangent line to a circle by visiting these web-sites:
http://www.mathsisfun.com/definitions/tangent-line-.html
http://www.mathsisfun.com/geometry/construct-circle-tangent.html

Complete problems #13-20 in your composition notebook. Copy the questions and figures first.

For numbers 13-15, refer to the figure of a circle as shown to the right. Line A extends through the circle’s center and line B touches the circle at only one point.

13. What name is given to the line labeled “B” in the picture?
14. What is the angle’s measure between line A and line B in the picture?
15. If the area of the circle is 12.57 cm², what value is the circle’s circumference?

16. What is the area of the trapezoid shown in the graph at the right? (Break it into simpler common shapes and add the areas.)

Calculate the area of the following shapes. It may be necessary to break up the figure into common shapes.

17. 18.

Use the figure to the right with angles A-H to answer 19. and 20. Lines m and n are parallel and angle A is 75 degrees.

19. Report the angle measures in degrees for the following angles:

B____ C____ D____ E____ F____ G____ H____

20. Answer the following
  a. B and C are called vertical angles. How are they related?
  b. B and D are called supplementary angles. How are they related?
  c. C and F are called alternate internal angles. How are they related?
Graphing data
When you graph data in lab, one goal is to see how what you changed is related to what else you measured. However, only saying that both increased is not enough.
Is the relationship between variables in lab direct or indirect?
By what factor did one increase in relation to the other?
Is the graph linear or curved and what implication does that have for the situation?
What meaning does the slope have? What meaning does the area under the line have?
What other information is the graph showing you, if anything?

When graphing data from a lab, what is changed is called the independent variable and almost always goes on the x-axis. The thing you’re measuring almost always goes on the y-axis. The first variable mentioned in the title goes on the y-axis and the second one mentioned goes on the x-axis. For example, if it’s a “velocity vs. time” graph, time goes on the x-axis.

Skim the web-site info about the Cartesian Coordinate system and equations of lines for review:
http://www.mathsisfun.com/data/cartesian-coordinates.html
http://www.mathsisfun.com/algebra/linear-equations.html
https://www.mathsisfun.com/data/straight_line_graph.html

There are 3 main motion graphs we’re interested in: Position, Velocity, and Acceleration vs Time.

Skim the following 2 web-sites. (Just view the information. You need not do any activities or watch any videos that are found on these sites unless you wish).


Starting the beginning of the course in August, we’ll learn how the motion graphs are related to one another and do more practice. For now, just practice by graphing the following data set in your composition notebook on a distance vs. time graph (put time on the x-axis). Also calculate the slope and give the equation for the graph using \( y = mx + b \) form. Title the axes properly with letters and units.

<table>
<thead>
<tr>
<th>t (s)</th>
<th>d (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.0</td>
</tr>
<tr>
<td>0.5</td>
<td>1.5</td>
</tr>
<tr>
<td>1.0</td>
<td>2.0</td>
</tr>
<tr>
<td>1.5</td>
<td>2.5</td>
</tr>
<tr>
<td>2.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Journal about your experience related to Geometry Basics and Graphing. Answer the questions found on Canvas for this assignment (Journal Assignment #2). Include pictures of your composition notebook pages you completed since your Journal Entry #1. Refer to the Canvas Rubric for scoring guidelines.
Summer Session #2 Assignments due 8/15/2018:

Complete the following on or before 8/15/2018. The bold-italicized from the list is graded. Refer to Canvas for rubrics and scoring guidelines and e-mail me with questions/concerns:

- Read “Units and the Metric System Notes” and visit the corresponding web-sites
- Watch the video “Units and Quantities” on EDpuzzle
- Complete pg 11 Unit Conversion Practice problems #21-25 in your composition notebook
- Complete the “Virtual Lab: Graphing with Online Simulation” from pg 12 in your composition notebook
- Complete and Submit “Journal Assignment #3” to Canvas (refer to Canvas rubric)
- Skim through the web-sites pertaining to SOHCAHTOA
- Watch the video “SOHCAHTOA” on EDpuzzle
- Complete pg 13-14 problems #26-35 in your composition notebook
- Complete and Submit “Journal Assignment #4” to Canvas (refer to Canvas rubric)

Summer Session #2 Assignments (All Session #2 assignments are due Aug 15th, 2018)

Units and the Metric System Notes

In Physics, we need to understand what a number means. The number itself describes how large or small a quantity is, but the unit gives the number meaning. 10 gallons means something different than 10 years. The numbers are the same, but the meanings are completely different. Because a course like physics deals with interactions in our universe, we must pay close attention to what the meanings of the quantities are.

We use the metric system because it is standard worldwide and the calculations are simpler. The basic units we use are the kilogram for mass, the meter for length, and the second for time. All other units come from those. In the table below are some main units of measure we will use during the course (this is not an exhaustive list). Hopefully, you have seen many of them before.

<table>
<thead>
<tr>
<th>Units:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>Mass</td>
</tr>
<tr>
<td>Length/displacement</td>
</tr>
<tr>
<td>Time</td>
</tr>
<tr>
<td>Velocity</td>
</tr>
<tr>
<td>Acceleration</td>
</tr>
<tr>
<td>Force</td>
</tr>
<tr>
<td>Kinetic energy</td>
</tr>
<tr>
<td>Potential energy</td>
</tr>
<tr>
<td>Torque</td>
</tr>
<tr>
<td>Work</td>
</tr>
<tr>
<td>Momentum</td>
</tr>
<tr>
<td>Power</td>
</tr>
<tr>
<td>Spring constant</td>
</tr>
</tbody>
</table>
Visit the following websites and skim through the information.
http://www.mathsisfun.com/measure/unit.html
http://www.mathsisfun.com/measure/metric-system.html

Watch the video “Units and Quantities” on EDpuzzle

Unit Conversion Practice
Complete the following in your composition notebook. Copy each problem and show your work for each. If you don’t remember how to do these, Google “King Henry Died by Drinking Chocolate Milk” and read up for a refresher.

21. 0.77 m = ________cm
22. 8.8 \times 10^{-8} m = ________mm
23. 4008 g = ________kg
24. 186 km/hr = ________m/s
25. 365 days = ________seconds
**Virtual Lab: Graphing with an Online Simulation**

You will use an online simulation to plot data on a graph and determine the pattern from the graph. Title the lab in your notebook, take and record all data in a data table, and plot the graphs as instructed. Refer to the page you pasted into your notebook titled, “PHYSICS LABORATORY NOTEBOOK” for the lab format and do your best. Please email me if you have questions!

Open the online simulation here: [https://phet.colorado.edu/sims/html/ohms-law/latest/ohms-law_en.html](https://phet.colorado.edu/sims/html/ohms-law/latest/ohms-law_en.html)

You should see this something like this →

Use a data table like this in your notebook:

<table>
<thead>
<tr>
<th>Trial</th>
<th>V</th>
<th>I</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Take data and create a graph to find the pattern. In the simulation, the variables are V, I, and R. Pretend V is “y” and I is “x”. (You can find the number for variable I in the simulation by looking where it says “current = ___mA.” The number shown for I in the picture is 9.0 mA).

Make the slider for $V = 1.0\ V$ and $R = 500\ \Omega$. Keep adjusting the slider for V little by little and record at least 5 readings for V, I, and R in your data table you copied. You could make more rows and do more than 5 “trials” if you want.

The numbers for I are measured in “mA’s” but you need to graph them in “A’s” to see the right pattern. Record all that data points and then divide each number in the I column by 1000 to convert. Then graph your data for V vs I in your notebook putting the converted I numbers on the x-axis and V on the y.

Questions to answer in your notebook (copy these questions or print/cut/paste them first):

1. How can you determine the resistance (R) using only the graph?
2. Do you see the pattern? Here is a hint if you don’t see it yet: $y = mx + b$. Substitute V in for y and I in for x. “b” should be zero. What should R be from the graph?
3. Does the number you calculate from the graph for R match the slider value for R in the simulation?
4. If you’ve heard of DRY-MIX, the dependent/responding variable goes on the Y-axis. You may have noticed this lab does not follow DRY-MIX. Based on what you know at this point, make a guess why you think the graph in this case is switched (the dependent was put on the x instead).
5. Describe the most memorable thing you will take away from this lab.

Journal about your experience related to the Metric System and the lab you completed. Answer the questions found on Canvas for this assignment (Journal Assignment #3). Include pictures of your composition notebook pages you completed since your Journal Entry #2. Refer to the Canvas Rubric for scoring guidelines.
Visit the following websites and skim the information. Then complete #26-35 in your notebook.

http://www.mathsisfun.com/right_angle_triangle.html
http://www.mathsisfun.com/algebra/sohcahtoa.html
http://www.mathsisfun.com/sine-cosine-tangent.html

Watch the video “SOHCAHTOA” on EDpuzzle

Practice SOHCAHTOA. For questions #26-31, copy them into your notebook and show your work.

Use the triangle to the right for number 26-28.

26. \( \sin \theta = \ldots \)
   \( \cos \theta = \ldots \)
   \( \tan \theta = \ldots \)

27. In the triangle shown, if you were to put \( \theta \) at the origin of its own x-y axes, would line \( a \) be along x or y? \( \ldots \)
   would line \( b \) be along x or y? \( \ldots \)
   If the left of side of line \( c \) is at \((0,0)\), what ordered pair is the right side of line \( c \)? \( \ldots \)

28. The Pythagorean Theorem is only valid for right angle triangles. What is the equation for the Pythagorean Theorem (use letters from the triangle above)?

For 29 – 31, refer to each right-angle triangle. Include correct units in each answer.

29. \( x = \ldots, \ y = \ldots \)
30. \( R = \ldots, \ \theta = \ldots \)
31. \( d = \ldots, \ x = \ldots \)
For #32-35, refer to the coordinate system shown below and answer the questions (copy or print-cut-paste into your notebook). Each “tick-mark” on both the x and y scales go by 1.0 unit. Point O is the origin, (0,0).

32. Label on the graph the ordered pair for each point A-E shown above.

33. Draw the 5 triangles with each hypotenuse connecting point O to each point. Always make one leg of the triangle touching the x-axis.

34. Calculate and label on the graph the length of each hypotenuse. (Use the Pythagorean Theorem)

35. Use SOHCAHTOA to calculate every angle at Point O of each triangle you drew. Put the values in a data table, (labeling angles on the graph is not required).

Journal about your experience related to SOHCAHTOA and submit to Canvas. Answer the questions found on Canvas for this assignment (Journal Assignment #4). Include pictures of your
composition notebook pages you completed since your Journal Entry #3. Refer to the Canvas Rubric for scoring guidelines. Read the syllabus and bring signed forms by the first day of school:

Contact Sheet
Safety Contract
AP Honor Code