

Hello! My name is Amy Pezzoni. Students call me Mrs. Pezzoni (peh-z -nee) or Mrs. P and I will be your AP Physics teacher in the Fall. I live in Modesto and am married with two boys, Andrew (14) who will be joining us at CHS as a freshman, and Simon (11) who is entering the sixth grade at Caswell Elementary. I enjoy knitting, crocheting, spinning, reading, and video games. I played Volleyball, Soccer, and Badminton in high school, and acted in a few plays. There is more you will learn about me as the year goes on, but I wanted to at least introduce myself. 😊

I have a Bachelor of Science in Computer Engineering from Cal Poly, San Luis Obispo and a teaching credential in Physics and Mathematics. I have worked as a Computer Scientist for Quantum Corporation, Diablo Canyon Nuclear Power Plant, and Lawrence Livermore National Laboratory. I have also taught math at Vanguard College Preparatory Academy in Empire and Downey High School in Modesto. I am very excited to continue teaching physics here at CHS!

In this packet, you will find an “interview” and five short self-tests. The “interview” sheet will help me learn about you. Beyond your name and grade, you may answer any of the questions as briefly or deeply as you are comfortable sharing the information. You may skip any question you are not comfortable answering at all. Please keep in mind that the better I get to know you, the better I can tailor our class to your interests. Please return your response to my box in the front office, or to me personally (I can’t wait to meet you!).

The self-tests cover significant figures, scientific notation, unit conversions, basic algebra, and right triangles. I have provided the self-tests for your use in determining how well you know these skills. We will use these skills constantly throughout the course; you may want to brush up on them just prior to returning to school. Please contact me if you need any help here.

I can be reached at my CHS email, apezsoni@ceresusd.net at any time. Please do not hesitate to contact me if you have any questions, comments, or suggestions for me or our class.

I am looking forward to our time together and hope you have a wonderful summer!

Sincerely,



Mrs. Pezzoni
AP Physics
Ceres High School

Physics Interview

What is your name? _____

What grade are you in? _____

Tell me about your family. _____

Do you have any pets? _____

Tell me about hobbies/activities outside of school. _____

Tell me about your clubs, sports, band, or other extra-curricular activities. _____

What genres do you enjoy in books/movies/games (fantasy, science fiction, adventure, etc)? _____

What are some of your favorite books/movies/TV shows? _____

What are some of your favorite games (board, phone, console, computer, etc)? _____

What is your favorite subject in school? Why? _____

What is your least favorite subject in school? Why? _____

What math class are you taking in the Fall? _____

Do you have a preference between algebra and geometry? Explain. _____

Why do you want to take AP Physics? _____

What universities are you considering? _____

What field do you want to get into? Tell me about your dream job. _____

Is there anything else you would like me to know about you? _____

AP Physics - Self Tests

There are three rules on determining how many significant figures are in a number:

1. Non-zero digits are always significant.
2. Any zeros between two significant digits are significant.
3. A final zero or trailing zeros in the DECIMAL PORTION ONLY are significant.

Determine the number of significant figures for each number

- 1) 0.05980
- 2) 3062
- 3) 4.12
- 4) 67.100
- 5) 600
- 6) 0.09

Simplify and write in Scientific Notation

- 1) $(1.05 \times 10^4)(7.2 \times 10^{-3})$
- 2) $\frac{7.2 \times 10^4}{9.4 \times 10^{-11}}$
- 3) $(3.4 \times 10^{-1})^3$
- 4) $(4 \times 10^{-11})(8.1 \times 10^6)$
- 5) $\frac{9.5 \times 10^{-2}}{7 \times 10^7}$
- 6) $(5.7 \times 10^3)^{-4}$

Unit conversions (1 meter = 39.3701 inches, 1 pound = 453.592 grams, 1 quart = 32 oz)

- 1) 452 inches to millimeters
- 2) 212 millimeters to inches
- 3) 517 millimeters to meters
- 4) 149 grams to pounds
- 5) 4900 seconds to hours
- 6) 319 ounces to quarts

Use algebra to solve for the indicated variable.

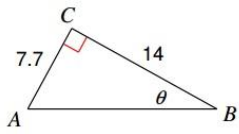
Example: Given $V = IR$, solve for I .

$$\frac{V}{R} = \frac{IR}{R} \rightarrow I = \frac{V}{R}$$

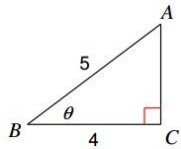
- 1) Given $v = v_0 + at$, solve for a .
- 2) Given $F_f = \mu F_N$, solve for μ .
- 3) Given $F = ma$, solve for a .
- 4) Given $K = \frac{1}{2}mv^2$, solve for v .

Find the measure of the angle (to 3 significant figures) or side indicated.

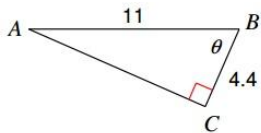
1) Find θ



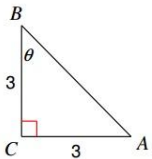
2) Find θ



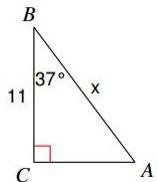
3) Find θ



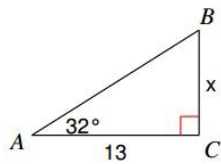
4) Find θ



5) Find x



6) Find x



Significant Figures

1) 4

2) 4

3) 3

4) 5

5) 1

6) 1

Scientific Notation

1) 7.56×10^1 (2 s.f.) = 7.6×10^1

2) 0.765957×10^{15} (s.n. & 2 s.f.) = 7.7×10^{14}

3) 39.304×10^{-3} (s.n. & 2 s.f.) = 3.9×10^{-2}

4) 32.4×10^{-5} (s.n. & 1 s.f.) = 3×10^{-4}

5) 1.35714×10^{-9} (1 s.f.) = 1×10^{-9}

6) 9.47328×10^{-16} (2 s.f.) = 9.5×10^{-16}

Unit Conversions

1) $\left(\frac{452 \text{ in}}{1}\right) \left(\frac{1 \text{ m}}{39.3701 \text{ in}}\right) \left(\frac{10^3 \text{ mm}}{1 \text{ m}}\right) = \frac{452 \times 10^3}{39.3701} = 11480.79$ (s.n. & 3 s.f.) = $1.15 \times 10^4 \text{ mm}$

2) $\left(\frac{212 \text{ mm}}{1}\right) \left(\frac{1 \text{ m}}{10^3 \text{ mm}}\right) \left(\frac{39.3701 \text{ in}}{1 \text{ m}}\right) = 8346.46 \times 10^{-3}$ (s.n. & 3 s.f.) = 8.35 in

3) $\left(\frac{517 \text{ mm}}{1}\right) \left(\frac{1 \text{ m}}{10^3 \text{ mm}}\right) = 517 \times 10^{-3}$ (s.n. & 3 s.f.) = $5.17 \times 10^{-1} \text{ m}$

4) $\left(\frac{149 \text{ g}}{1}\right) \left(\frac{1 \text{ lb}}{453.592 \text{ g}}\right) = 0.328489 \text{ lb}$ (s.n. & 3 s.f.) = $3.28 \times 10^{-1} \text{ lb}$

5) $\left(\frac{4600 \text{ s}}{1}\right) \left(\frac{1 \text{ min}}{60 \text{ s}}\right) \left(\frac{1 \text{ hr}}{60 \text{ min}}\right) = 1.277777$ (2 s.f.) = 1.3 hr

6) $\left(\frac{319 \text{ oz}}{1}\right) \left(\frac{1 \text{ qt}}{32 \text{ oz}}\right) = 9.96875$ (3 s.f.) = 9.97 qt

Algebra

1) $a = \frac{v-v_0}{t}$

2) $\mu = \frac{F_f}{F_N}$

3) $a = \frac{F}{m}$

4) $v = \sqrt{\frac{2K}{m}}$

Right Triangles

1) $\frac{7.7}{14} = \tan \theta \rightarrow \theta = 28.8^\circ$

3) $\frac{4.4}{11} = \cos \theta \rightarrow \theta = 66.4^\circ$

2) $\frac{4}{5} = \cos \theta \rightarrow \theta = 36.9^\circ$

4) $\frac{3}{3} = \tan \theta \rightarrow \theta = 45^\circ$

5) $\frac{11}{x} = \cos 37^\circ \rightarrow x = 13.8$ (2 s.f.) = 14 units

6) $\frac{x}{13} = \tan 32^\circ \rightarrow x = 8.1233$ (2 s.f.) = 8.1 units