

Physics 112

Friday, May 10/19


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FA Duo-Tangs -> Submit Today

Re-Assessment: SA (**p**, **J**, etc) - Tuesday at Noon

1. Submit/Return: FA - Work Problems
 2. Questions?
Worksheet - Textbook - C6 PP #19-21 -> Kinetic Energy
Textbook - C6 PP #22-25 -> E_k and W- E_k Theorem
 3. FA - Kinetic Energy
FA - Work-Kinetic Energy Theorem
FA - Work-Kinetic Energy Theorem (Problem) } Monday
 4. Gravitational Potential Energy
 5. Work-Gravitational Potential Energy Theorem
 6. Reference/Zero Lines
 7. Worksheet - Text - C6 PP #27 and 29 -> Grav. Pot. Energy
Text - C6 PP #30-33 -> W- E_g Theorem
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8. Restoring Force
 9. Hooke's Law
 10. Elastic Limit
 11. Worksheet - Textbook - C6 PP #35-37 -> Hooke's Law

Physics 122
Friday, May 10/19


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Submit FA duo-tangs today.

1. SA- Experiment 8.1 - Kepler's Laws - Page 49
- 3 Days Late
2. Questions?
Worksheet - Kepler's Laws
Worksheet - Universal Law of Gravitation
Chapter 12 -> Page 580, PP#1-7
Worksheets (3) - Kepler's Law, Universal Gravitation, Etc.
4. FA - Kepler's Third Law
FA - Universal Law of Gravitation
FA - Planetary Motion (g, v and T)
5. **SA U2 S1&2 - Tuesday, May 14/19**

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6. Unit 2 - Section 3 - SHM

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1. SA - Electrochemistry

Science 10

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1. Optional FA's - Certainty and Precision Rules

Rearranging Equations

Metric Conversions

2. SA - Physics #1 - Topics

- Date: Tuesday, May 14/19

3. Review - SA: Physics #1

4. Roller Coasters

SA - Physics #1 - Topics

1. definitions: physics, linear motion, physical quantity, significant digits, certainty, exact value, defined value, rounding digit, defining equation

2. SI System - International System of Units

- know the SI base units for length, time and mass
- be able to identify a derived unit

m s kg
 $\frac{m}{s}$ $\frac{m}{s^2}$ $\frac{kg \cdot m}{s^2}$

3. certainty - identify certain and uncertain digits in a measurement

- determine the certainty of a measurement by stating its number of significant digits

4. SDs and operation rules - Certainty Rule

- > multiply and divide
- > total # of significant digits

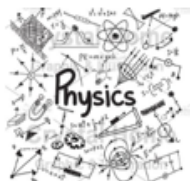
- Precision Rule

- > add and subtract
- > # of digits after the decimal

scientific notation

5. rearrange an equation for a specified variable

6. perform metric conversions using conversion factors



Science 10
Review – SA: Physics #1

Name - _____

1. Match each term on the left with its definition or example(s) on the right.

- | | | |
|---------------------------------------|--|---|
| <u>H</u> 1. <u>defining equation</u> | <u>A</u> the study of matter and energy | V

mass
$\left[\frac{m}{s} \right]$

$A = bh$
$\rightarrow \downarrow$ |
| <u>I</u> 2. <u>base units</u> | <u>B</u> a physical property that can be measured | |
| <u>D</u> 3. <u>defined value</u> | <u>C</u> a combination of two or more base units | |
| <u>B</u> 4. <u>physical quantity</u> | <u>D</u> 1 h = 3600 s | |
| <u>F</u> 5. <u>significant digits</u> | <u>E</u> determined by the number of significant digits in a measurement | |
| <u>A</u> 6. <u>physics</u> | <u>F</u> "certain-plus-one" digits | |
| <u>E</u> 7. <u>certainty</u> | <u>G</u> 20 students | |
| <u>G</u> 8. <u>exact value</u> | <u>H</u> expresses a physical quantity in symbols | |
| <u>J</u> 9. <u>linear motion</u> | <u>I</u> m, s, kg | |
| <u>C</u> 10. <u>derived unit</u> | <u>J</u> <u>motion in one direction</u> | |

2. For each measurement below, state its number of certain digits, uncertain digits and significant digits.

- | | | | |
|--------------------------|------------------|--------------------|-------------|
| a) 12.09 g | # certain = ____ | # uncertain = ____ | #SDs = ____ |
| b) 0.0078 m | # certain = ____ | # uncertain = ____ | #SDs = ____ |
| c) 6.50×10^2 kg | # certain = ____ | # uncertain = ____ | #SDs = ____ |
| d) 400 g | # certain = ____ | # uncertain = ____ | #SDs = ____ |

3. Round each measurement below to the indicated number of significant digits or decimal places.

a) Round to six significant digits: $705.491632 \text{ m} \rightarrow$ _____

b) Round to four decimal places: $705.491632 \text{ m} \rightarrow$ _____

c) Round to two significant digits: $705.491632 \text{ m} \rightarrow$ _____

4. a) Complete the following calculations by providing the correct answer rounded to the appropriate number of significant digits. Don't forget to include units.

(i) $23.89 \text{ m} + 3.912 \text{ m} =$ _____ m Precision.

(dd)

(ii) $1.4 \text{ m} \times 5.27 \text{ m} =$ _____ m^2 Certainty.

(SD)

7.378 m^2

(iii) $9.475 \text{ g} \div 12.05 \text{ cm}^3 =$ _____ $\frac{\text{g}}{\text{cm}^3}$

(iv) $16.152 \text{ s} - 1.8 \text{ s} =$ _____

(v) $83.4 \text{ cm} \times 5.7 \text{ cm} =$ _____

b) What is the rounding digit in (ii)? 3

c) What is the name of the rule you used in (iv) to determine the correct number of significant digits in your final answer? Precision Rule.

5. Rearrange each equation for the indicated variable.

a) $J = Ft$ [t]

b) $F = \frac{ne^2}{7}$ [n]

c) $r = 3pg - w$ [p]

d) $\underline{a}^2 + 5h = w$ [a]

6. Perform the following conversions using conversion factors. Show your work.

1 km = 1000 m
1 m = 100 cm
1 h = 60 min
1 h = 3600 s

a) Convert 0.78 h to min

$$\begin{array}{c} \boxed{0.78 \text{ h}} \\ \text{2 SD} \end{array} \times \begin{array}{c} \boxed{} \\ \hline \boxed{} \end{array} = \underline{} \text{ min}$$

2 SD

b) Convert 34.87 cm to m

7. Convert 17.1 m/s to km/h. Show work.

$$\begin{array}{r} \text{m/s} \quad \times 3.6 \\ \hline \text{km/h} \end{array}$$

$$\begin{array}{c} \boxed{17.1 \text{ m/s}} \\ \text{3 SD} \end{array} \times 3.6 = \underline{}$$