

Science 10

Thursday, April 26/18

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1. Review - SA - Physics #1 -> Review answer key tonight.

2. SA - Physics #1

- Friday, April 27/18



- Topics: See next page

3. Roller Coasters - Due Date: Friday, June 1/18

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
 $\frac{m}{s}$, $\frac{m}{s^2}$
3. certainty - identify certain and uncertain digits in a measurement
 - determine the certainty of a measurement by stating its number of significant digits
4. scientific notation - be able to write a measurement in scientific notation
5. SDs and operation rules - Certainty Rule
 - > multiply and divide
 - > count total # of significant digits
 - > round product or quotient to same # of SDs as original measurement with the fewest SDs
 - Precision Rule
 - > add and subtract
 - > count # of digits after the decimal
 - > round sum or difference to the same # of digits after the decimal as the original measurement with the fewest digits after the decimal
6. rearrange an equation for a specified variable
7. perform metric conversions using conversion factors

Physics 112

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Midterm - Monday, April 30

1. Check
Worksheets - 1st and 2nd Law Problems
FA - Newton's Laws of Motion

2. Concepts: U2 S3 - Introduction to Momentum
3. Momentum
4. Impulse
5. Worksheet: C5 - Momentum -> Page 197: PP #29
C5 - Impulse -> Page 200: PP #30-32
6. Impulse-Momentum Theorem
7. Worksheets:
C5 - Impulse-Momentum Page 203: PP #33-35
C5 - Momentum and Impulse-Momentum Page 209: PFU #37-45

Physics 122

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Midterm

1. Check:

Worksheet - Current -> Textbook - C15 - Page 696, PP #4-10

Worksheet - Resistance -> Textbook: C15, Page 708, #16-20

Worksheet - Ohm's Law -> Textbook: C15, Page 714, #21-25

2. Power - Continue

3. Worksheet - Textbook: Page 737, #40-42

Page 744, #46-50

4. Series Circuits

5. The VIR Chart

6. Worksheet - (Series) Textbook: Page 719, #27-31

7. Parallel Circuits

8. Worksheet - (Parallel) Textbook: Page 724, C15 - PP#32-35

9. Combination/Complex Circuits

10. Worksheet - (Complex) Textbook: Page 728, #36-37

Textbook: Page 749, #33-34

11. Worksheets - Circuit #1

Circuit #2

Science 122
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Midterm - April 30/18

1. Check
Worksheet - Worksheet - Energy of Photons, Work Function,
de Broglie Wavelength, Etc.
Worksheet - Energy Levels
FA - Photoelectric Effect and Energy Levels
 2. Optional -> Two More Types of Nuclear Reactions:
Fission and Fusion
-
3. Topic - Magnetism
 4. Electric Charge Versus Magnetic Poles
 5. Lodestone and Ferromagnetic Materials
 6. Magnetic Domains
 7. Magnetic Field Lines
 8. Electromagnetism
 9. Right-Hand Rule #1
 10. Solenoid/Electromagnet
 11. Right-Hand Rule #2
 12. Right-Hand Rule #3
 13. Two Current-Carrying Wires
 14. Electric Motors

Science 122 - Midterm

1. Optics → Spherical Mirrors
 - Concave & convex
 → Lenses
 → convex and concave
 → double ①

2. Fluid Mechanics
 - Hydrostatics
 → $P_2 = P_1 + \rho gh$
 → $W_{app} = W - F_B$ ①
 → $F_{net} = 0 N$
 or $F_B = W_B + W_L$

- Hydrodynamics
 → $m = \rho Av$, $Q = V = Av$, $A_1 v_1 = A_2 v_2$
 → $P_1 + \frac{1}{2} \rho v_1^2 + \rho g y_1 = P_2 + \frac{1}{2} \rho v_2^2 + \rho g y_2$ ①
 $A_1 v_1 = A_2 v_2$

*reference levels

3. Nuclear
 → $A = \lambda N$ $N = N_0 e^{-\lambda t}$ ①
 $m = m_0 e^{-\lambda t}$
 $\lambda = \frac{\ln 2}{T_{1/2}}$ $A = A_0 e^{-\lambda t}$

- Photoelectric effect
 $K_{max} = \frac{1}{2} m v^2$ $E = hf$ ①
 $K_{max} = hf - \phi$
 photoelectron photon surface

* $c = f \lambda$
 * $1 \text{ nm} = 10^{-9} \text{ m}$
 $hf_c = \phi$ } $hf_t = \phi$
 $V_s = \frac{K_{max}}{e}$

- Energy level Diagrams
 $E_n = -13.6 \frac{Z^2}{n^2}$ ①
 $|\Delta E| = E_f - E_i$

- de Broglie [①*]
 $\lambda = \frac{h}{mv}$
 λ wavelength of particle