

Physics 112

Friday, January 12/18

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1. Exam Review - Problem #5
2. Questions?
Worksheet - Waves: Frequency, Period and Wave Speed
3. Refraction
4. Three Cases - Continue
5. Snell's Law
6. Worksheet - Refraction: Problems #1-13

7. Critical Angle
8. Total Internal Reflection
9. Worksheet - Refraction: Problems #13-20
10. SA - U4:S1&2 -> Wednesday, January 17/18
-> Fill in Blanks
Refraction Diagram
Problems

P112 - Exam Review - Problem #5

2nd Law	/	$\vec{J} = \Delta \vec{p}$
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A 2.0 kg skateboard is rolling across a smooth, flat floor when a boy kicks it, causing it to speed up to 4.5 m/s in 0.50 seconds without changing direction. If the force exerted by the boy on the skateboard in its direction of motion was 6.0 N, with what initial velocity was it moving?

Impulse - ie/ pf provided

Physics 122

Friday, January 12/18

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Mrs. Stewart's Roller Coasters

1. Return -> FA - Current, Resistance in a Wire and Power
 2. Exam Review - Problem #1 and Problem #2
 3. Worksheet - Textbook: C15, Page 708, #16-20
Worksheet - Textbook: C15, Page 714, #21-25
Worksheet - Textbook: Page 737, #40-42
Page 744, #46-50
Series -> Textbook: Page 719, C15 - PP#27-31
Parallel -> Textbook: Page 724, C15 - PP#32-35
Complex -> Textbook: Page 728, C15 PP#36-37
 4. **SA - U3 - S2 - Electric Circuits -> Tuesday, January 16/18**
 - MC: 10 max
 - Problems: electric current ($I = q/t$)
resistance in a wire ($R = \rho \frac{L}{A}$)
power ($P = IV$)
complex circuit - complete VIR chart
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FA - Current, Resistance in a Wire and Power

1. How many electrons flow through a battery that delivers 3.0 A for 0.20 min?
2. The resistivity of a silver wire is $1.59 \times 10^{-8} \Omega\text{m}$. The diameter of the wire is 0.101 cm. If the length of the wire is 3.00 m, what is the resistance of the wire?
3. An iron is plugged into a 120 V outlet. If the power used by the iron is $6.00 \times 10^2 \text{ W}$, what is the resistance in the heating element of the iron?

P122 - Exam Review - Problem #1

Pull Problem

$6.6 \times 10^2 \text{ N}$

A 200 kg cart is pulled along a level surface by a rope angled at 15° above the horizontal. If the cart's speed increases at a rate of 1.6 m/s^2 , what is the magnitude of the tension in the cable? Assume the coefficient of friction between the cart and the surface is 0.18.

P122 - Exam Review - Problem #2

2.1 m/s, 32° S of E

A 4.0 kg object is travelling south at a velocity of 2.8 m/s when it collides with a 6.0 kg object travelling East at a velocity of 3.0 m/s. If these two objects stick together upon collision, at what velocity do the combined masses move immediately after they collide?

Science 10

Friday, January 12/18

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1. Worksheet: Position vs. Time Graphs
Worksheet: Velocity vs Time Graphs
Worksheet - Acceleration Problems
2. SA - Physics #3 -> Next Wednesday - Last One!
-> Topics
-> Review
3. Roller Coasters - Due: Thursday, Jan. 18/18
4. Practice Exam * Velocity-Time Graph

Topics - SA: Physics #3

1. definitions: scalar quantity, distance, speed, vector quantity, reference point, position, displacement, constant velocity, resultant displacement, average velocity, acceleration
2. directions: positive (east, north, up, right)
negative (west, south, down, left)
3. physical quantities: type, symbol and unit
4. determine the slope of a line using:

$$m = \frac{\text{rise}}{\text{run}} \quad \text{OR} \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

5. identify types of motion:
 1. uniform (constant velocity)
 2. uniformly accelerated motion (changing velocity)
6. answer questions about position vs. time graphs
7. draw a velocity vs. time graph given a position-time graph
8. answer questions about velocity vs. time graphs
9. describe the motion of an object by comparing the directions of the object's velocity and acceleration
10. solve word problems:
 - (i) displacement
 - (ii) constant velocity
 - (iii) average velocity
 - (iv) acceleration