

Physics 112

Thursday, January 11/18

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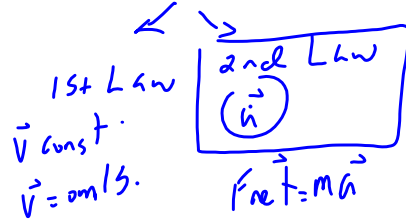
1. Exam Review - Problem #4
2. Questions?
Worksheet - Waves: Frequency, Period and Wave Speed
3. Refraction
4. Three Cases - To Be Continued

5. Snell's Law
6. Worksheet - Refraction: Problems #1-13
7. Critical Angle
8. Total Internal Reflection
9. Worksheet - Refraction: Problems #13-20

P112 - Exam Review - Problem #4

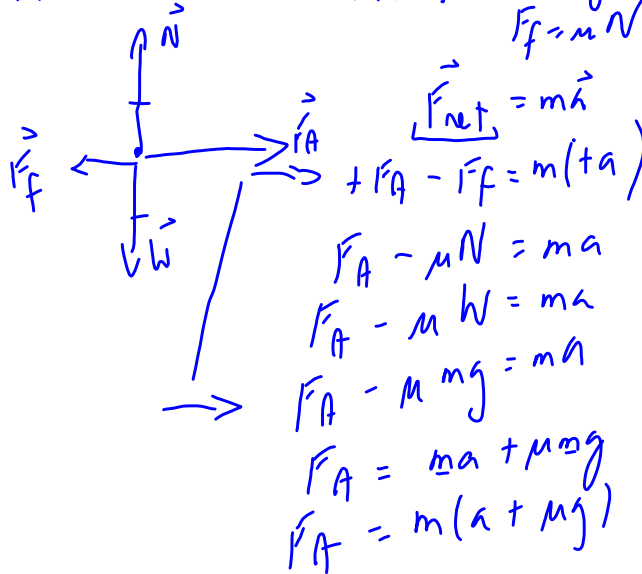
Second Law

In a physics lab, Amanda applies a 34.5 N rightward force to a cart to accelerate it across a horizontal surface at a rate of 1.28 m/s². The coefficient of friction between the cart and surface is 0.648. Determine the mass of the cart. Include an FBD for the cart.



$F_A = 34.5 \text{ N}$ | $F_A = +34.5 \text{ N}$ or 34.5 N, right
 $a = 1.28 \text{ m/s}^2$
 $\mu = 0.648$
 $m = ?$

$N = W$ $F_{\text{net}} = ma$
 $F_A \neq F_f$ $W = mg$
 $F_f = \mu N$



$F_A = ma + \mu mg$
 $F_A = m(a + \mu g)$
 $F_A = m$

$a + \mu g$ $\times 9.80 \text{ m/s}^2$
 $m = \frac{34.5}{(1.28 + 0.648 \times 9.80)}$ 4.52 kg

$m = 4.52 \text{ kg}$

WS

Physics 122

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Mrs. Stewart's Roller Coasters

1. FA - Current, Resistance in a Wire and Power
 2. 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
 3. **SA - U3 - S2 - Electric Circuits -> Tuesday, January 16/18**
 - MC: 10 max
 - Problems: electric current ($I = q/t$)
resistance in a wire ($R = \frac{\rho L}{A}$)
power ($P = IV$)
complex circuit - complete VIR chart
-

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?

Science 10

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1. **Roller Coasters - Due: Thursday, Jan. 18/18**
2. Acceleration
3. Comparing Directions of Velocity and Acceleration
4. Acceleration - 3 Sample Problems
5. Worksheet: Position vs. Time Graphs
Worksheet: Velocity vs Time Graphs
Worksheet - Acceleration Problems
6. **SA - Physics #3 -> Next Wednesday - Last One!**
7. Practice Exam