

Physics 112

Friday, February 19/16

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Explain That Stuff - Feb. 19/16

1. Assignment - Metric System -> **4 Days Late**
 2. Return -> Quiz - Basic Skills + Meetings
 3. Physics Lab - Experiment 2.1: Measuring Length -> **1 Day Late**
 4. Adding Vectors Graphically - 2 Methods
 5. Examples and Rubric: Vector Analysis - Graphical
-
6. Worksheet - Graphical Manipulation of Vectors
 7. Review: Law of Pythagoras and Trig Functions
 8. Examples and Rubric: Vector Analysis - Analytical
 9. Worksheet - Analytical Manipulation of Vectors

Science 122

Friday, February 19/16

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1. Second Attempt - Complex Circuit

2. Right-Hand Rule #1

3. Solenoid/Electromagnet

4. Right-Hand Rule #2

5. Right-Hand Rule #3

6. Electric Motors

Science 10

Friday, February 19/16

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1. Assignment - Your Name in Chemical Symbols
- 4 Days Late
 2. Return and Review -> Quiz - Matter to Simple Binary Ionic Compounds
 3. Assignment - Ions and Ionic Compounds
-
4. Covalent Bond - To Be Continued
 5. Diatomic Molecules
 6. Naming Binary Molecular Compounds
 7. Practice - Binary Covalent Compounds

Physics 122

Friday, February 18/16

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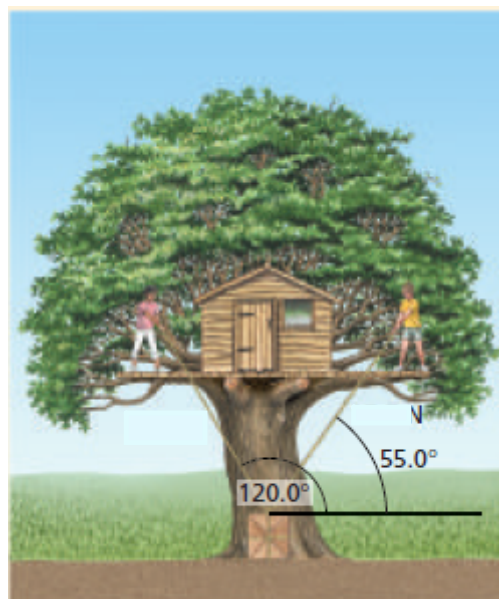
Explain That Stuff - Feb. 19/16

1. FA - Type II - Complex
 2. Worksheet - Extra Practice - Type II
 3. Force Problems - Type III - Inclind Planes
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4. Worksheet -> Text: Chapter 5 -> Page 191, #25
Page 194, #27, 28
-> More on Backside of Sheet

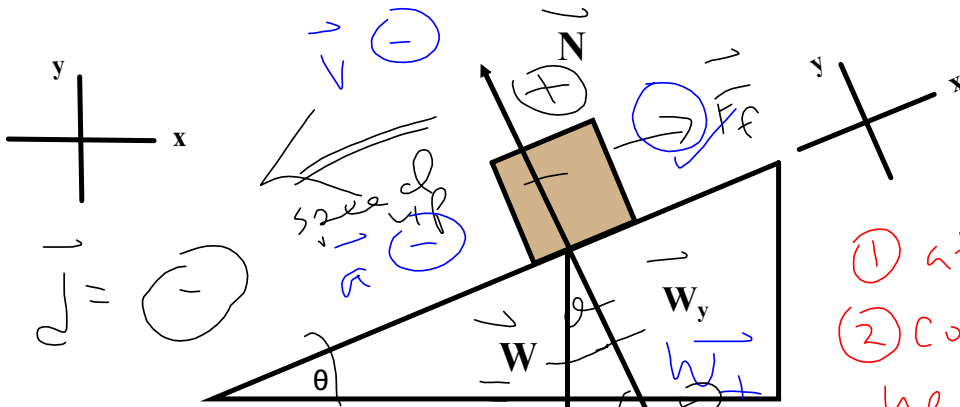
FA - Type II Force Problem

Friday, Feb. 19/16

Afua and Chrissy are going to sleep overnight in their tree house and are using some ropes to pull up a box containing their pillows and blankets, which have a total mass of 3.20 kg. The girls stand on different branches and pull at the angles shown. Find the magnitudes of the tensions in each rope. (19.8 N, 17.3 N)



Type III - Inclined Planes (Hill, Ramp)



- ① at rest
- ② constant vel up / down
- ③ acc.

Free body x = ma

$$+ F_f - W_x = m(a)$$

$$N - W \sin \theta = -ma$$

Free body y = ma

$$+ N - W_y = 0$$

$$N - W \cos \theta = 0$$

$$N = W \cos \theta$$

REMEMBER:

$$\vec{a} = \frac{\vec{v}_f - \vec{v}_i}{t}$$

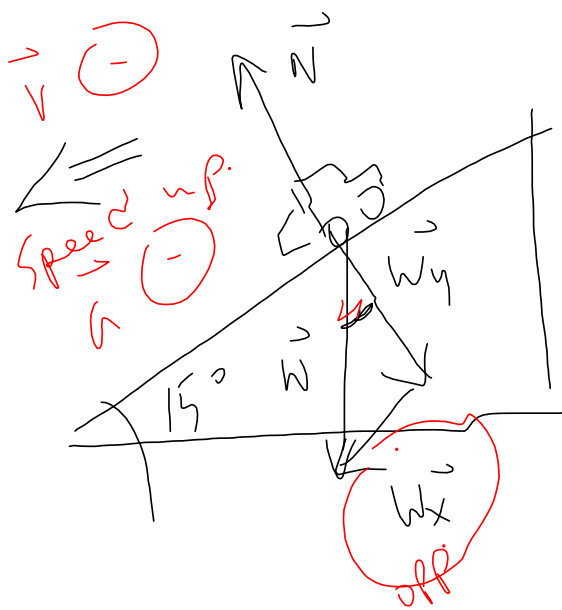
$$\vec{v}_f^2 = \vec{v}_i^2 + 2\vec{a}\vec{d}$$

$$\vec{d} = \vec{v}_i t + \frac{1}{2} \vec{a} t^2$$



Examples

1. A 1975 kg car is rolling down a hill inclined at an angle of 15° . What is the acceleration of the car? Neglect friction. (2.5 m/s^2 down the hill)



$$F_{\text{net } x} = ma$$

$$+W_x = m(+a)$$

$$W_x = ma$$

$$W \sin 15^\circ = ma$$

$$mg \sin 15^\circ = ma$$

$$a = g \sin 15^\circ$$

$$a = (9.80) \sin 15^\circ$$

$$\rightarrow a = 2.5 \text{ m/s}^2$$

$$\vec{a} = 2.5 \text{ m/s}^2$$

down the incline

WS. \rightarrow The acc. of the car is 2.5 m/s^2 down the incline.

Try

2. A skier coasts down a 3.5° slope at a constant speed. Find the coefficient of kinetic friction between the skis and the snow covering the slope. (0.061)