Physics 112

Friday, December 7/18

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1. Redo SA - U2S3 -> Noon Today

2. Return and Review:
   FA - Work -> Deadline: Monday, Dec. 10/18

3. SA - U3S1 - Work: Tuesday, Dec. 11/18
   Format: Fill in the Blanks - See Examples Next Page
   4-5 Problems

4. U3S2 - Types of Energy and Work-Energy Theorems - Concepts*

5. Types of Energy

6. Kinetic Energy

7. Work-Kinetic Energy Theorem - To Be Continued

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8. Worksheet -C6 PP #19-21 -> Kinetic Energy
   - C6 PP #22-25 -> E_k and Work- E_K Theorem

9. FA - Kinetic energy and Work-E_k Theorem - TBD

Physics 112
Work, No Work and Types of Work

Name - _____ Date - _____

Complete each statement with a word(s) or symbol(s) to make the statement true. Watch your spelling!

1. When a force of friction does work, it always does negative work.
2. A joule, J, expressed as a combination of base units is $\frac{kgm^2}{s^2}$.
3. Force is a vector quantity.
4. The force of gravity does positive work on the ball of paper as it falls into the garbage can.

5. Only a force parallel to the motion of an object can possibly do work on the object.
6. Work is a measure of energy transfer. *
7. Positive work done on an object adds energy to the object.

$\rightarrow \vec{F}$
$\rightarrow \Delta\vec{d}$

8. The floor applies a normal force to the wheels of the cart. The normal force does no work on the wheels of the cart as the man pushes the cart to the left.

$\vec{d}$ W

$\Delta\vec{d}$ $\vec{v}$

9. Consider displacement and work. work is the scalar quantity.
10. "When a horizontally accelerating object experiences an applied force and force of friction, the net force acting on the object does work." This statement is false.

$+F_A - F_f = ma$

11. A man carries a box of decorations across his living room to his Christmas tree.

a) The force of gravity does no work on the box.

b) The force applied by the man's hands to the sides of the box does no work on the box.

$\rightarrow \Delta\vec{d}$ $\downarrow \vec{F}_g$

FA. 1. $W = \checkmark$ $F_g = \checkmark$ $d = \checkmark$

$W = Fd$ $W = F_g d$ $W = mgd$ $d = \frac{W}{mg}$ $d = \frac{W}{F_g}$

object lifted ↑

$W = F_g = mg$

$F_g = W$ weight

$W = Fd$ $W = F_A d$

$W = Fd$ $W = F_f d$

$d = \frac{405.7}{(14)(9.80)}$ F_g (9)

$d = 2.3\,m$

negative.

b) $\vec{F}_g \downarrow$ $\uparrow \Delta\vec{d}$

2. $W = Fd$ $W = F(0)$ $W = 0\,J$

$W = ?$ $F = F_g = 15\,N$

$\vec{F}_A$ $\vec{F}_{net}$

3. $W = 0.0273\,J$

* $d = 5.80\,cm \rightarrow 0.0580\,m$

$a = 6.31\,m/s^2$

$m = ?$

$W = Fd$ $W = F_A d$ $W = F_{net} d$ $W = mad$

$m = 1.50\,kg$

4. $W = 110\,J$ $d = 2.4\,m$ $F = ?$

$W = Fd$ $F = \frac{W}{d}$ ✓

$F = \_\_\_\_$

Physics 122

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1. FA - SHM: Pendulum - Deadline: Thursday, December 6/18
2. FA - SHM: Mass on a Spring - Deadline: Mond., Dec. 10/18
3. Worksheet - Horizontal Projectiles: C11, Text 536, PP #1-8
4. FA - Horizontal Projectiles - Available but not officially assigned.

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5. Projectile Fired at an Angle - Actual vs Theoretical Path
6. Projectile Motion at Various Initial Angles
7. Special Case
8. Formulas: Projectile Launched At an Angle
9. Other Possible Trajectories
10. Worksheet - Projectiles Fired at an Angle
    - C11, Text 543, PP #9-12

    Worksheet - Projectiles Fired at an Angle
    - C11, Text 549, PP #13, PP #14 (Level 1)
    - C11, Text 570, PFU #17, 19, 20 (omit graph)

Science 10

Friday, December 7/18

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1. Science Articles - Complete 8 by the end of the semester.
   Optional Assignment - Graphing Characters (Max. 2)
   - Due: Dec. 21/18

2. Return -> FA - Graphing Basics

3. Physical Quantities

4. Distance vs Time Graph

5. Slope and Speed

6. Worksheets - Distance vs Time Graph

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7. Graph Matching

8. Average Speed

9. Problem Solving Strategy

10. Problem Solving Template

11. Examples: Average Speed Problems