Reminders 9-10-07:

-Worksheet due today.

-Next Homework Due 9/13!!!

-Use Webassign FORUM for help from peers.

-Pick up graded papers in basket outside S-107A.

-Save all files onto a USB Stick/Flash Drive.

-Obtain software from desktop of computers in lab.

-Check course web page once a week.

-Log in & Log out when using Tutoring Center or S-107 (lab)

-Sign up for Physics 2X.

-Conceptual Quiz Wednesday 9/12 on 3.1&3.2, 4.1&4.2.

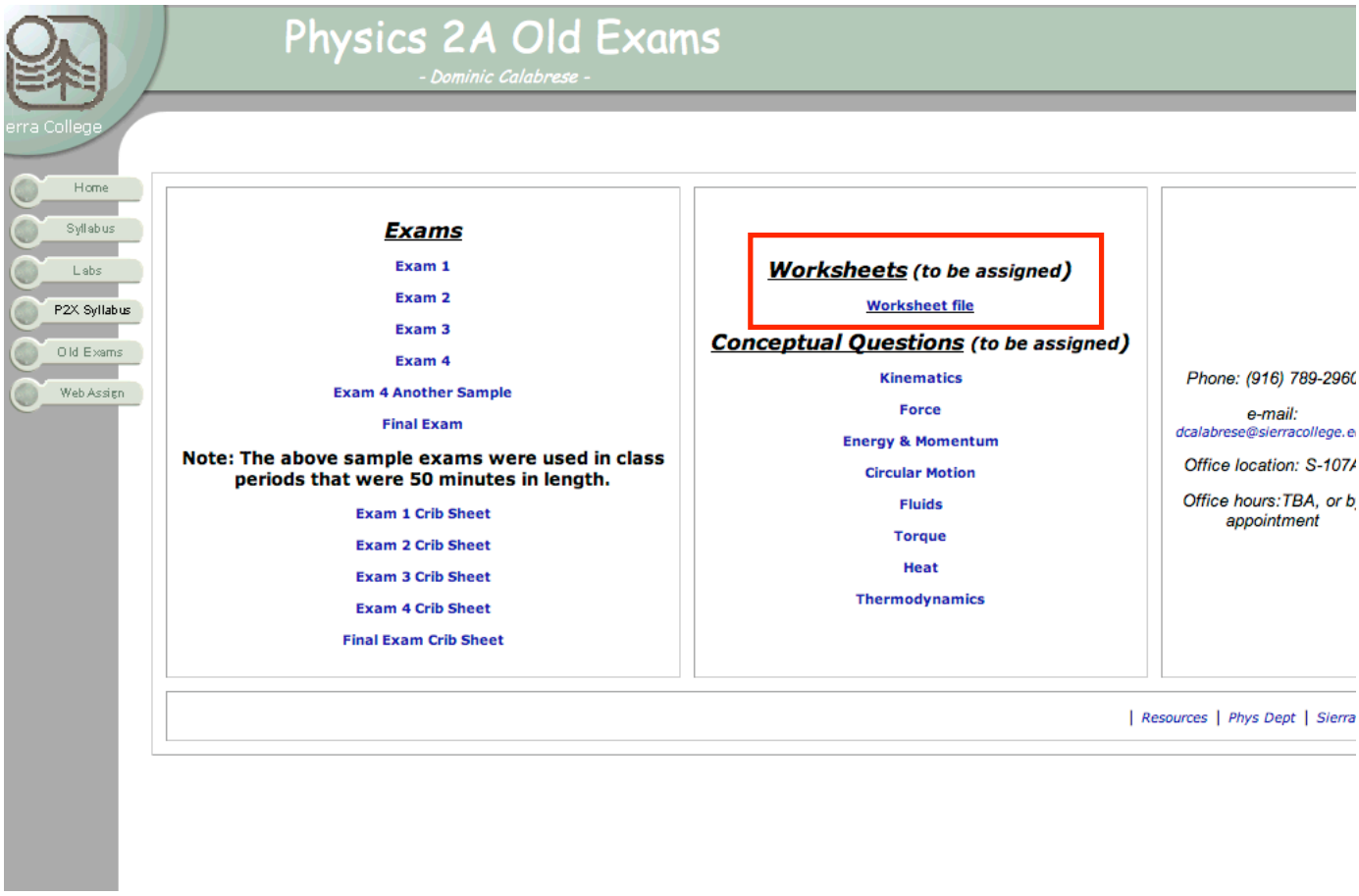
-Exam 1 Monday 9/24.

Objectives:

-More on Statics

-Newton's Laws

-Kinematics



Physics 2A Old Exams

- Dominic Calabrese -

erra College

Home
Syllabus
Labs
P2X Syllabus
Old Exams
Web Assign

Exams

Exam 1
Exam 2
Exam 3
Exam 4
Exam 4 Another Sample
Final Exam

Note: The above sample exams were used in class periods that were 50 minutes in length.

Exam 1 Crib Sheet
Exam 2 Crib Sheet
Exam 3 Crib Sheet
Exam 4 Crib Sheet
Final Exam Crib Sheet

Worksheets (to be assigned)

Worksheet file

Conceptual Questions (to be assigned)

Kinematics
Force
Energy & Momentum
Circular Motion
Fluids
Torque
Heat
Thermodynamics

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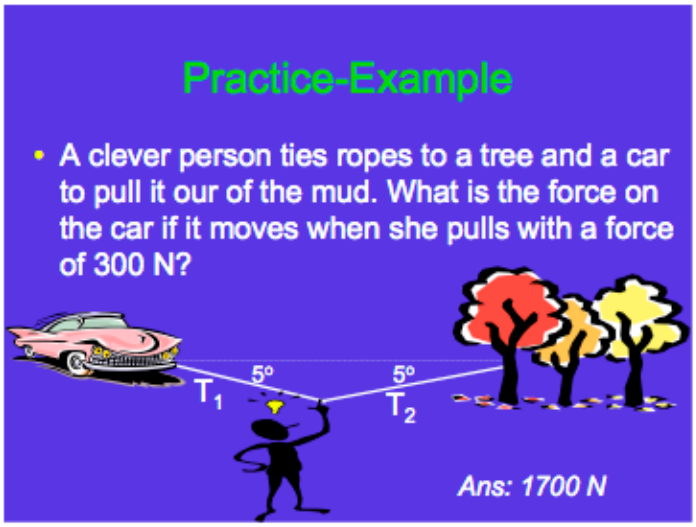
Office hours:TBA, or b
appointment

| *Resources* | *Phys Dept* | *Sierra*

Name_____

Force Worksheet

Complete the following problem. Turn this worksheet in at the beginning of the next lecture.



a. Draw a free-body diagram indicating the forces acting at the point where she pulls on the rope.

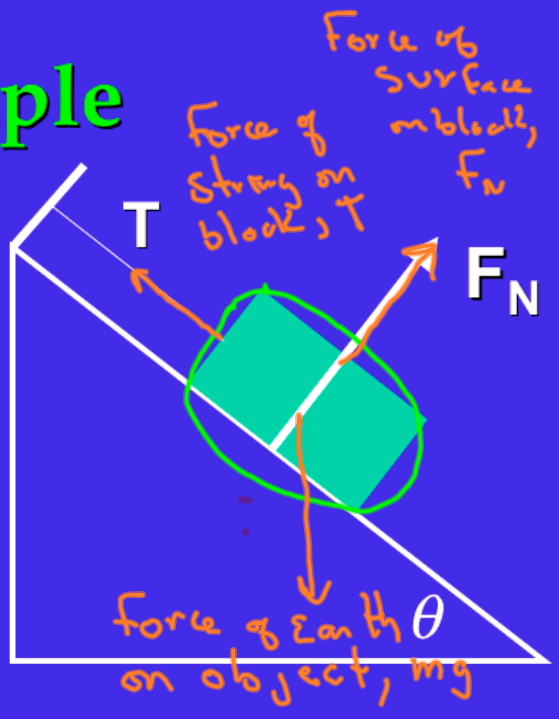
b. Sum the forces in the x-direction and set the sum equal to zero.

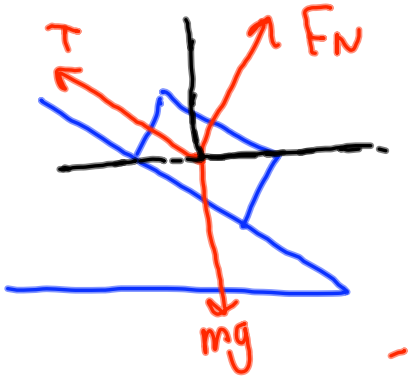
c. Sum the forces in the y-direction and set the sum equal to zero.

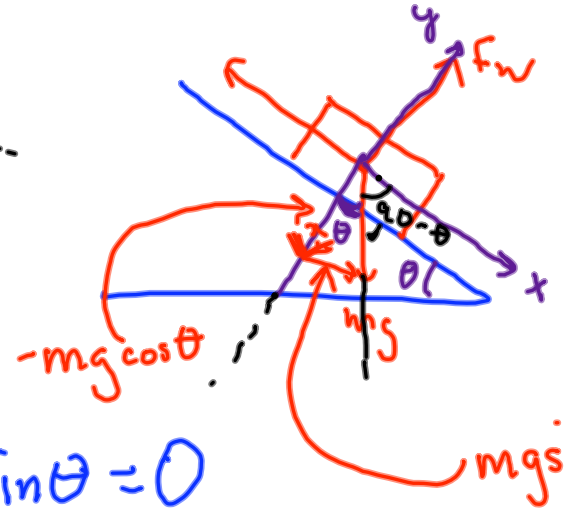
d. Solve the equations from parts b and c simultaneously to obtain unknown.

Example

- A 1.0×10^1 kg box is on a hill ($\theta = 30.0^o$). What force is required to keep this block in equilibrium? How can we accomplish this? What is the normal force?







$$\sum F_x = -T + mg\sin\theta = 0$$

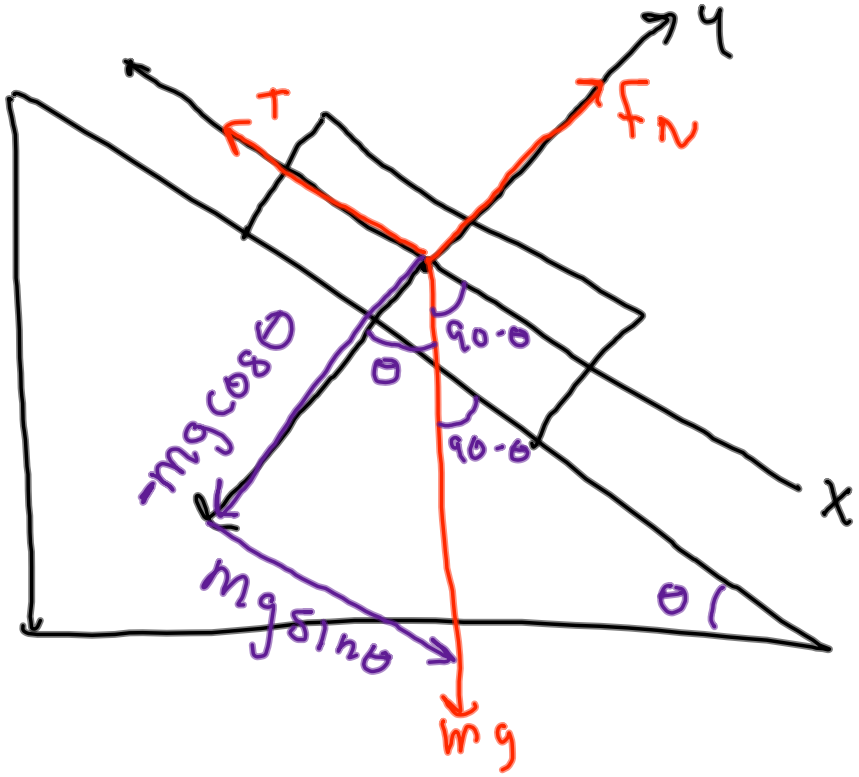
$$T = mg\sin\theta = (10.0\,kg)(9.80\,m/s^2)\sin 30$$

$$= 49\,N$$

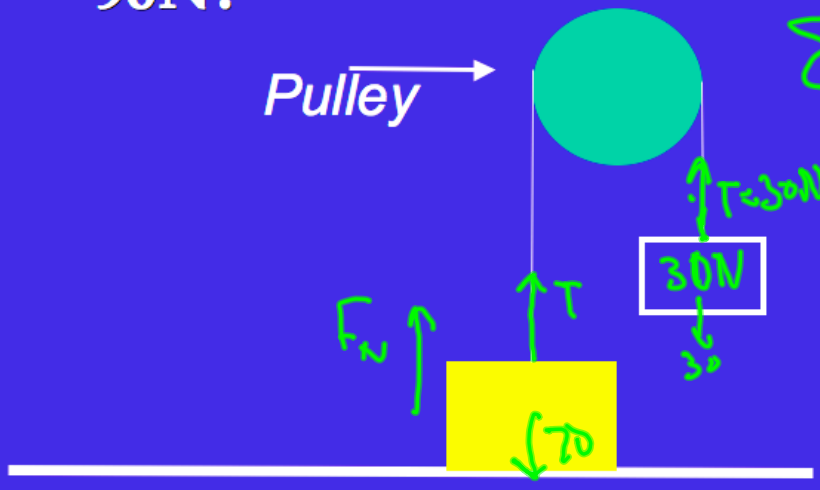
$$\sum F_y = F_N - mg\cos\theta = 0$$

$$F_N = mg\cos\theta$$

$$= (10.0\,kg)\left(9.80\,\frac{m}{s^2}\right)\cos 30 = 85\,N$$


y
T
f_N
$-mg\cos\theta$
θ
90-θ
90-θ
x
$mg\sin\theta$
θ
mg

- If the box on the table weighs 70 N, find the force that the table exerts on the box when the hanging weight is 30N, 60N, 90N?



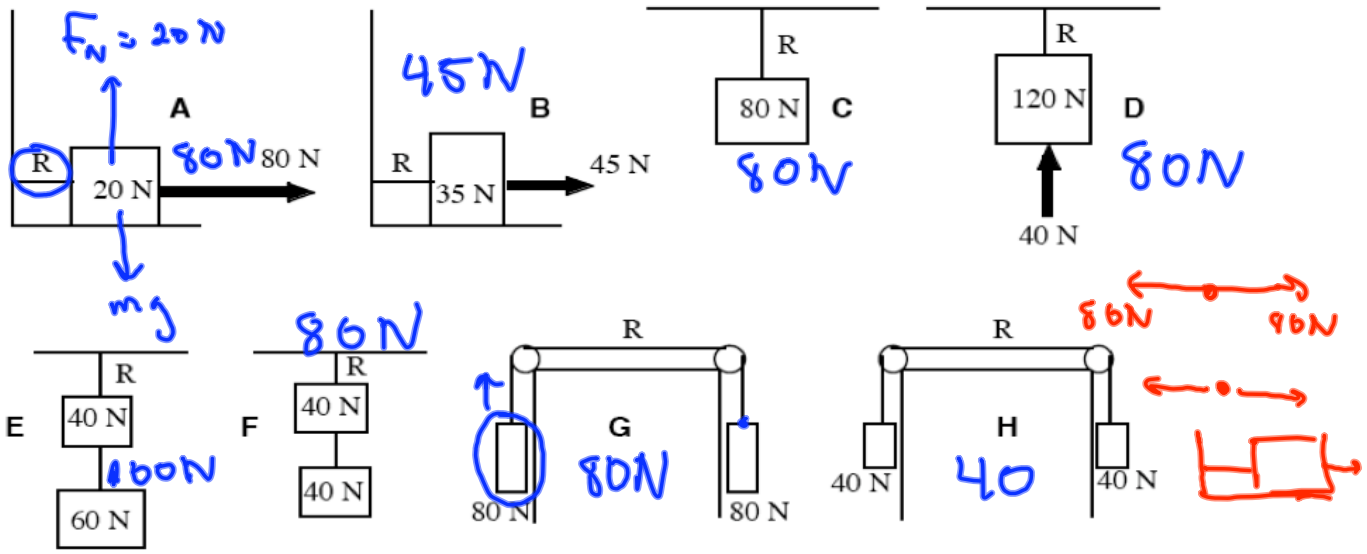
$\Sigma F_y = T + F_N - 70N = 0$

$F_N = 70 - T = 0$

Ans: 40N, 10N, 0N

The eight figures below show various situations where blocks of different weights are attached by ropes to rigidly fixed objects or to other blocks, which are attached to fixed objects. The situations differ in a number of ways, as the figures show. The weights of the blocks are given in the figures, as well as the magnitudes and directions of any other forces that may be acting. Our interest is solely in the rope that is designated R in each figure.

Rank these arrangements, from greatest to least, on the basis of the tension in the rope R. That is, put first the arrangement where rope R is under the greatest tension and put last the arrangement where rope R is under the least tension.

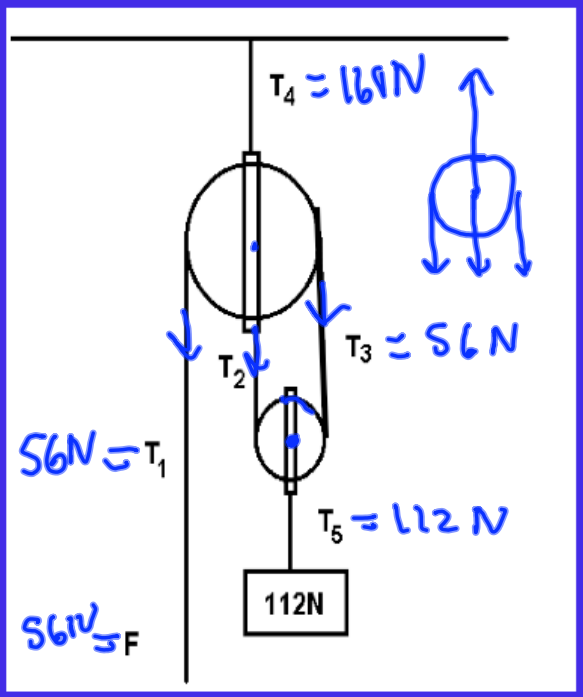


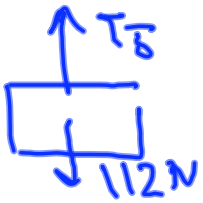
Greatest 1_____ 2_____ 3_____ 4_____ 5_____ 6_____ 7_____ 8_____ Least

Or, all the ropes marked R are under the same tension (but not zero). _____

Or, there is no tension in any of these ropes. _____

A 112N weight is attached to a two-pulley system. A downward force F must be applied to keep the mass in equilibrium. Assuming the pulleys are of very small mass, calculate F, T_1, T_2, T_3, and T_4.

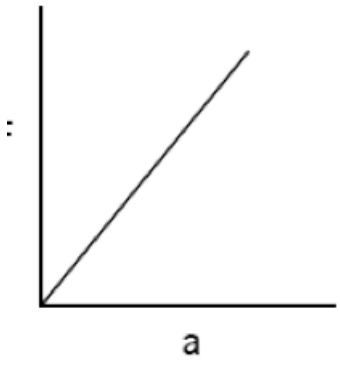




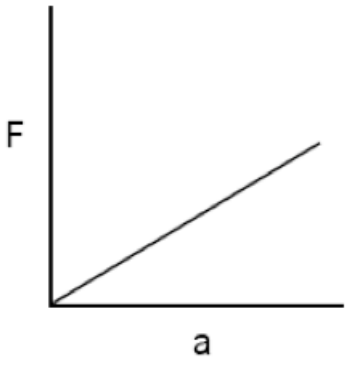
$2T_2 - T_5 = 0$

$T_2 = \frac{T_5}{2} = 56N = T_3$

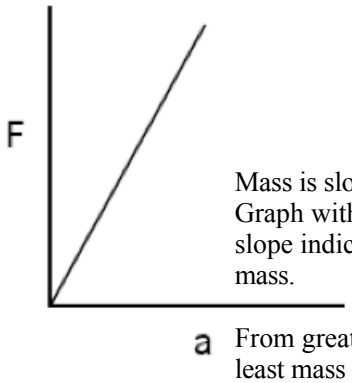
A



B



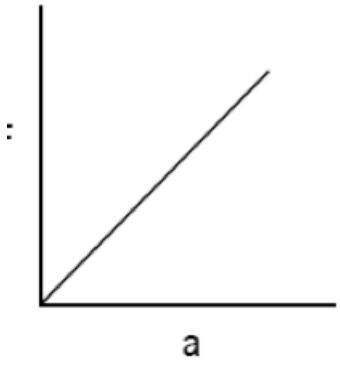
C



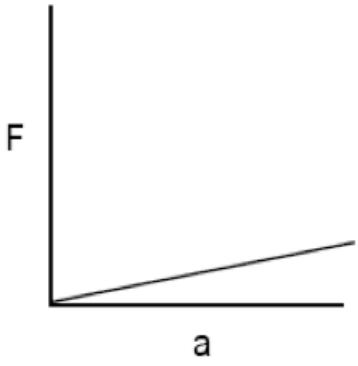
Mass is slope of graph. Graph with greatest slope indicates greatest mass.

From greatest mass to least mass we have F, C, A, D, B, E

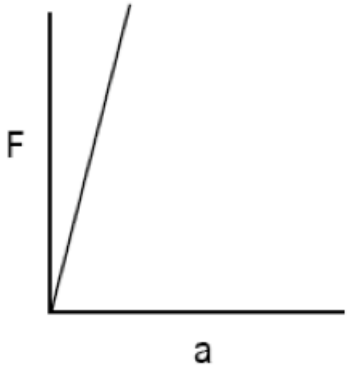
D



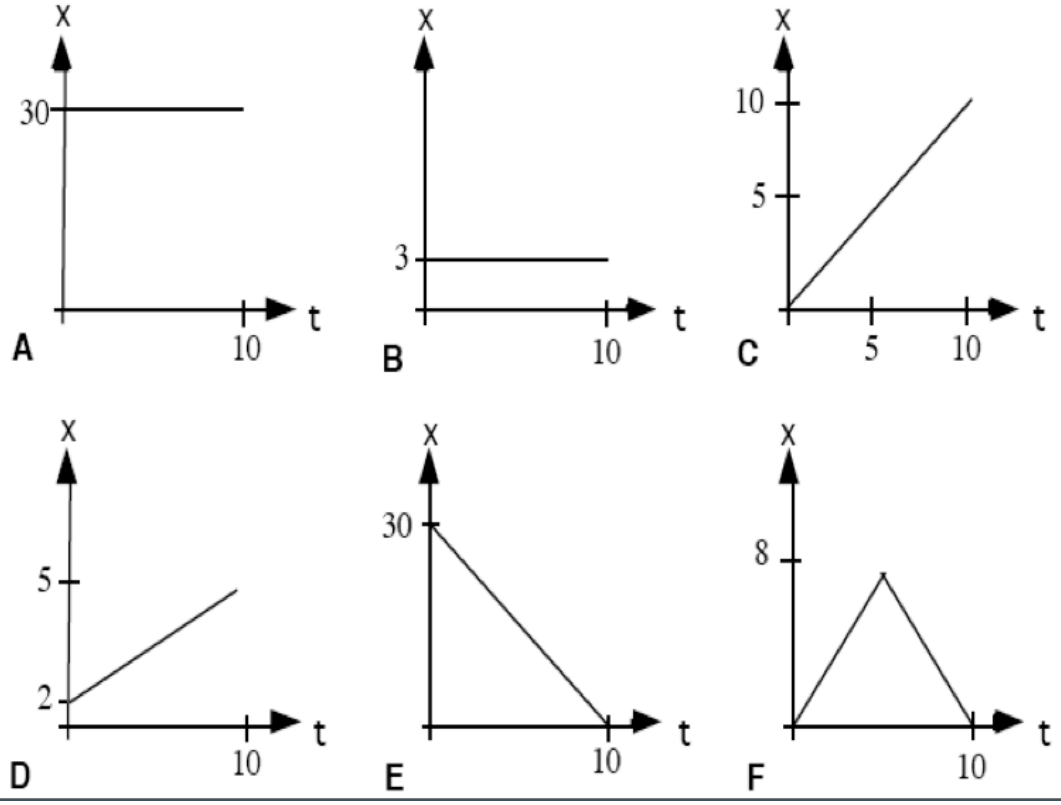
E



F



In the position vs. time graphs below, all the times are in seconds (s), and all the positions are in meter (m). Rank these graphs on the basis of which graph indicates the greatest displacement from beginning t end of motion. Give the highest rank to the one(s) with the greatest displacement, and give the lowe rank to the one(s) indicating the least displacement. If two graphs indicate the same displacement, giv them the same rank. Note: Zero is greater than negative, and ties are possible.



- An airplane changes its position by 4250 km toward the east in 5 hours.
  - What is the airplane's displacement?
  - What is its total distance traveled?
  - What is the average velocity of the airplane?
  - What is the average speed of the airplane?
  - How long does it take to fly 6800 km in a straight line?

- A person travels 20 miles from city A to city B at an average speed of 30mph and returns back to city A at an average speed of 20mph. What is the average velocity? The average speed for the entire trip is not 25mph? It's 24mph. Why?