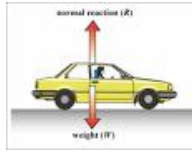


Worksheet:
Word Problems



Name _____
Date _____
Period _____ Table _____

Force Formulas for Physics Phun!

F	Wt	D	Mo	(V _f - V _i)
M	M	V	M	A
A	G	T	V	T
$F = M \times A$	$Wt = M \times G$	$D = V \times T$	$Mo = M \times V$	$(V_f - V_i) = A \times T$
$M = F / A$	$M = Wt / G$	$V = D / T$	$M = Mo / V$	$A = (V_f - V_i) / T$
$A = F / M$	$G = Wt / M$	$T = D / V$	$V = Mo / M$	$T = (V_f - V_i) / A$
Force = N	Weight = N	Distance = m	Momentum	(V _{final} - V _{initial})
Mass = kg	Mass = kg	Speed = m/s	= kg•m/s	= m/s
Accel = m/s ²	Gravity = m/s ²	Time = s	Speed = m/s	Accel = m/s ²
	Newton = kg•m/s ²		Mass = kg	Time = s

Problems: Choose the correct formula to answer the following questions. **Show Your Work** in 3 steps: 1) correct formula, 2) plug in numerical values, 3) answer with correct units

- Jennifer and Julie were running the 10 kilometer race. Jennifer ran an average speed of 4.6 m/sec and she stopped running after 36 minutes and 8 seconds. Julie ran an average speed of 5.8 m/sec and she stopped running after 28 minutes and 8 seconds.

What was the **distance** covered by both racers?

Jennifer

Julie

What was the outcome of the race? **Circle one** of the following.

Jennifer won the race, Julie won the race, They tied. Neither finished the race

- At the weekly LCMS CO₂ race. The cars were in top shape. Ben's 0.72 kg "black bomber" beat up the track in 8 seconds with a final velocity of 14.3 m/sec. In another race Kevin's 0.82 kg "red hornet" had a final velocity of 14.9 m/sec and finished in 8.2 seconds.

What was the **acceleration** of the two CO cars?

"Black Bomber"

"Red Hornet"

3. Back to the races. Which of the CO₂ racecars in question #2 has the greatest **momentum**?
Show the work for each race car/

“Black Bomber”

“Red Hornet”

Circle the race car with the **greatest momentum**: **“Black Bomber”** OR **“Red Hornet”**

4. Working together a 1078 N man and a 431.2 N girl push a 100 kg wagon. The man pushes with a force of 80 N while the girl pushes with a force of 20 N. (hint: net forces is sum of forces)

What is the **acceleration** of the wagon?

What is the **mass** of the **man**?

What is the **mass** of the **girl**?

5. In the famous race of the tortoise and the hare. The tortoise travels at a constant speed of 0.047 m/sec for 5 hours. The hare travels at a constant speed of 3.1 m/sec for 3 minutes and then rests for 4 hours and 55 minutes and 30 seconds. He then continues at his same constant speed until 5 hours total from the beginning of the race has elapsed (end of the race).

How **far** did each animal go in the **1st 2 hours**?

Tortoise

Hare

In this “yarn” who won the race? (**circle one**) **Tortoise** OR **Hare**