Name _____ Hour _____

The Horsepower Lab and Problems

The Horsepower Mini Lab
The world's strongest man can work at a horsepower of _____5.84 hp (for a few seconds)_

Working in groups of 2 or 3, choose any 3 activities from the following list:

lift a weight	jump rope
Running up/down flight of stairs	step aerobics (up and down 1 stair)
sit-ups	push-ups (on your knees or regular ones)
climb stairs	jumping jacks

Data: ***YOU MUST SHOW YOUR WORK IN THE BOXES OR YOU WILL LOSE POINTS!***
Do each activity for **one minute.** Record the force, the distance and the time required below.
After you finish with the activities, complete the calculations and answer the questions.

Activity-	**#1- __lift 5 lb weight**	**#2- __jump rope___**
Time (total) (sec)	60 sec	60 sec
Distance (total) (Use total distance covered)	72 m	45 m
Force (total) F= m x a	Use mass of weight in kg, a =-9.8	Use your mass in kg, a=-9.8

Now calculate the work and the power needed for each of the above activities. Show your work!

Work W = F x d		
Power P = W/Δt Or P = F x d / Δt		
Your horsepower:		

James Watt came up with a calculation of horsepower by watching a horse pull a grinder around a circle. He found it to be 33,000 lb x ft. Change this to our units of watts (N x m) using dimensional analysis. (1 N = 0.225 lb)
min **sec**