Do Now

- Check your homework with the problems that are on either side of the room.
- Grab a whiteboard and write down the problem that you would like to see solved the most.

Requested Homework

Today

- Power
- Review of:
  - Work
  - Potential and Kinetic Energy

Tonight

- Power Worksheet
- Study for quiz
- You will have up to 30 mins at the beginning of class tomorrow to ask questions about quiz material.

Power: energy/time

- You need more power to move something more quickly.

- Think stronger acceleration means more force.

Say Watt??

- Watt [W]: unit of power.
- W=J/s [joules per second]
- Also work/time

Watt's more powerful: a person who can lift 50kg 1m in 2 seconds or a person who can lift 150kg 4m in 20 seconds?

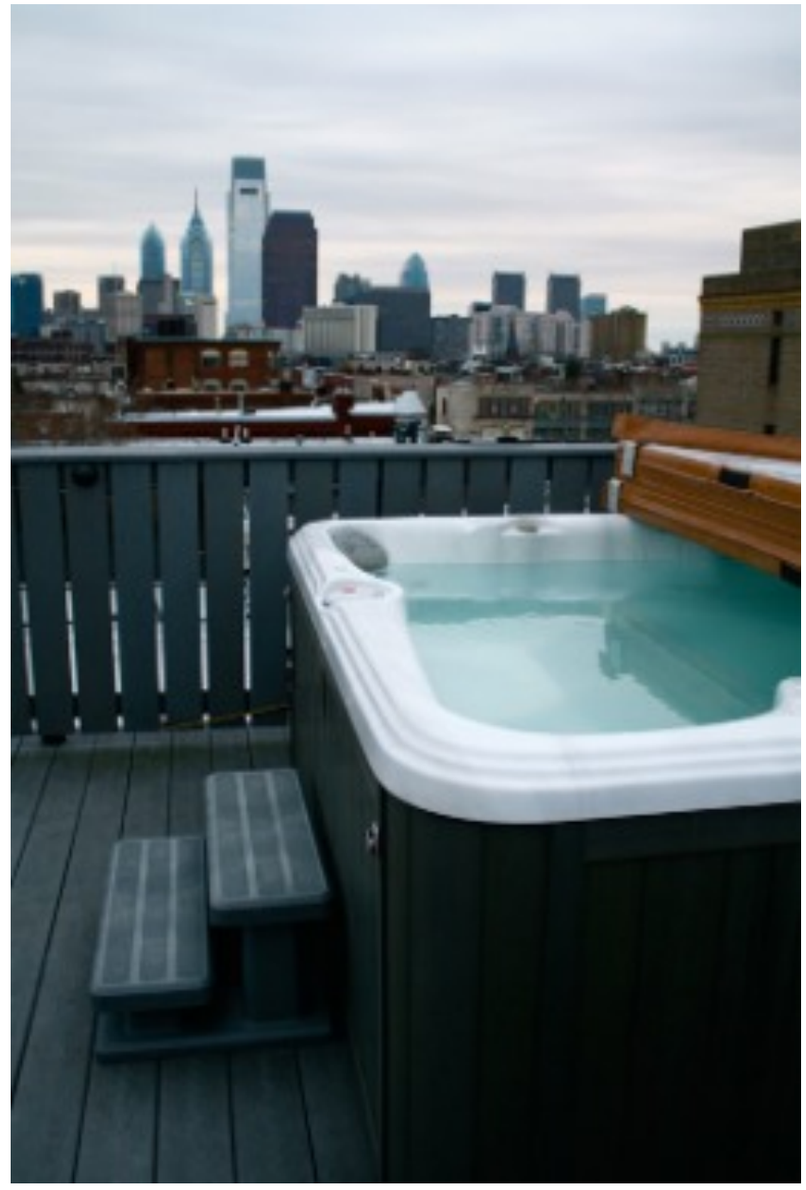
A hair dryer on high consumes about 1440 watts of power. How long could you use a 30 watt light bulb with the power needed to blow dry hair for 5 minutes?

A ‘71 Nova has an engine that exerts 3500N of force in order to maintain a velocity of 20m/s. What is the power rating?

Horse Power: hp

- Unit of power.
- 1 hp = 746 W.
- Imperial system of measurement.
- Also 33,000 ft pounds/min.

How fast can a 55 hp engine lift a 400kg hot tub to my 85m penthouse condo?



Review Topics

- Work = Fdcosθ
- GPE = mgh
- KE = (1/2)mv^2
- P = J/t

Harry lifts 100 kg of mass from the floor to a position above his head, 2.2 meters off the floor.

- How much work did he do on the mass?

- How much gravitational potential energy does the mass now have relative to the floor?

A piece of heavy machinery does 30,000 J of work on an old pile of junk in order to lift it 20 meters into the massive cruncher.

- What is the gravitational energy of the junk with respect to the ground?
- What is the mass of the junk?

A ball that has a weight of 70 N is dropped from a tower 15 meters above the ground. Ignoring air resistance, what is the kinetic energy of the ball when it reaches the ground?

A force of 10,000 N is exerted on a 50 gram bullet throughout the 10cm length of a gun barrel.

- How much work was done on the bullet?
- How much kinetic energy did the bullet have when it left the barrel of the gun?
- What was the speed of the bullet when it left the barrel of the gun?