

Name: _____ Block: _____

Power

1. A small snowmobile has a $9\bar{0}00$ W (12 hp) engine. It takes a force of 300. N to move a sled load of wood along a pond. How much time will it take to tow the wood across the pond if the distance is measured to be 850 m?

28.3 s

2. A winch, which is rated at 720 W, is used to pull an all-terrain vehicle (ATV) out of a mud bog for a distance of 2.3 m. If the average force applied by the winch is 1500 N, how long will the job take?

4.8 s

3. Jack and Jill went up the hill. (The hill was 23 m high). Jack was carrying a 21 kg pail of water. If Jack has a mass of 75 kg and he made the trip in 45 s, how much power did he apply?

480.9 W

4. Jill, who has a mass of 55 kg, goes to aerobics class and works out in the gym. She made the same trip as Jack did in problem #3, but she took 10 seconds less. How much power did she apply?

489.4 W

5. What is your power output if you have a mass of 65 kg and you climb a 5.2 m vertical ladder in 5.2 s?

637 W

6. The maximum power output of a crane is 12 kW. What is the fastest time in which such a crane can lift a 3500 kg crate a height of 6.0 m?

17.15 s