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Power Practice Problems

1. A 575N box is lifted strait up a distance of 20.0m by a cable attached to a motor. The box moves with a constant velocity and the job is done in 10.0s. What power is developed by the motor?
2. You push a wheelbarrow a distance of 60.0m at a constant velocity for 25s by exerting a 145N force horizontally.
   1. What power do you develop?
   2. If you move the wheelbarrow twice as fast, how much power is developed?
3. What power does a pump develop to lift 35kg of water from a depth of 110m in 60s?
4. An electric motor develops 65000W of power as it lifts a loaded elevator 17.5m in 35s. How much force does the motor exert?
5. A cyclist exerts a 15N force while riding 251m in 30.0s. What power does the cyclist develop?
6. A horizontal force of 300N is used to push a 145kg mass 30m horizontally in 3s
   1. Calculate the work done on the mass.
   2. Calculate the power developed.
7. A 75kg sprinter runs the 50m dash with a force of 735N in 8.5s assume the sprinters velocity is constant throughout the race. Find the sprinters power.
8. A librarian carries a 5N stack of books across the room 12m in 10s.
   1. What is the work done?
   2. What is the power generated?
9. A construction worker pushes a 20N rock 13m in 30s. What is the work done on the rock? How much power was developed?
10. Suzy and Timmy are racing up a 30m cliff each wearing 15kg backpacks. Suzy takes 18s to reach the top while Timmy takes 25s. Who had the greater power output?

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