

Conceptual Physics:
Work, Power, Horsepower Wkst I

Name: _____
Period: _____

Directions: SHOW ALL OF YOUR WORK, INCLUDING STEPS TO SOLVE EACH PROBLEM.

Formula's:

$$\text{Work} = F \times D$$
$$\text{Power} = \frac{\text{Work}}{\text{Time}} = \frac{F \times D}{t} = F \times \text{Velocity}$$

gravity = 9.8 m/s^2 or 10 m/s^2 (if rounded) HP = 746 N m /sec

1. Solve for the unknown in each of the below problems. 2 pts. each

W = ?
F = 20 N
D = 2 m

W = ?
F = 100 N
D = 15 m

W = ?
F = 50 N
D = 5 m

W = ?
F = 200 N
D = 0 m

2. Solve for the unknown in each of the below problems. 2 pts. each

W = 100 J
F = ?
D = 25 m

W = 500 J
F = ?
D = 2 m

W = 1500 J
F = ?
D = 5 m

W = 1200 J
F = ?
D = 40 m

3. Solve for the unknown in each of the below problems. 2 pts. each

W = 100 J
F = 10 N
D = ?

W = 50 J
F = 5 N
D = ?

W = 2000 J
F = 40 N
D = ?

W = 1600 J
F = 50 N
D = ?

4. Solve for the unknown in each of the below problems. 2 pts. each

$$\begin{aligned} P &= 500 \text{ W} \\ W &= 100 \text{ J} \\ t &= ? \end{aligned}$$

$$\begin{aligned} P &= 1000 \text{ W} \\ W &= 50 \text{ J} \\ t &= ? \end{aligned}$$

$$\begin{aligned} P &= 5000 \text{ W} \\ W &= 2500 \text{ J} \\ t &= ? \end{aligned}$$

$$\begin{aligned} P &= 50 \text{ W} \\ W &= 10 \text{ J} \\ t &= ? \end{aligned}$$

5. Solve for the unknown in each of the below problems. 2 pts. each

$$\begin{aligned} P &= 800 \text{ W} \\ W &= ? \\ t &= 20 \text{ sec} \end{aligned}$$

$$\begin{aligned} P &= 1200 \text{ W} \\ W &= ? \\ t &= 3 \text{ sec} \end{aligned}$$

$$\begin{aligned} P &= 200 \text{ W} \\ W &= ? \\ t &= 40 \text{ sec} \end{aligned}$$

$$\begin{aligned} P &= 60 \text{ W} \\ W &= ? \\ t &= 60 \text{ sec} \end{aligned}$$

6. Solve for the unknown in each of the below problems. 2 pts. each

$$\begin{aligned} P &= 500 \text{ W} \\ F &= 40 \text{ N} \\ D &= 25 \text{ m} \\ t &= ? \end{aligned}$$

$$\begin{aligned} P &= 100 \text{ W} \\ F &= ? \\ D &= 2 \text{ m} \\ t &= 10 \text{ sec} \end{aligned}$$

$$\begin{aligned} P &= 600 \text{ W} \\ F &= 100 \text{ N} \\ D &= ? \\ t &= 5 \text{ sec} \end{aligned}$$

$$\begin{aligned} P &= ? \\ F &= 60 \text{ N} \\ D &= 40 \text{ m} \\ t &= 30 \text{ sec} \end{aligned}$$

7. Convert each answer in #6 into Horsepower. 2 pts. each