Name _____ Texas High School
Subject _____, Period ____ Teacher _____ Date _____

Worksheet - Work & Power Problems

I. Work

A. Sample Problems:

1. F = 200 Newtons — Formula: _____
   d = 50 meters — Substitution: _____
   W = ? — Answer with unit of measure: _____

2. F = 5 Newtons — Formula: _____
   W = 75 Joules — Substitution: _____
   D = ? — Answer with unit of measure: _____

3. W = 125 Joules — Formula: _____
   d = 10 meters — Substitution: _____
   F = ? — Answer with unit of measure: _____

4. If 150 Joules of work is needed to move a box 10 meters, what force was used?

B. Fill-in-the-blank:

1. _____ is done when an object moves through a distance because of a _____ acting upon the object.

2. When calculating work, you should use the formula: work = force X _____.

3. The SI unit for work is the _____. It is represented by the letter _____.

C. Work Problems:

4. F = 90 N _____
   d = 5 m _____
   W = ? _____

5. F = 6 N _____
   W = 72 J _____
   d = ? _____

6. W = 120 J _____
   d = 24 m _____
   F = ? _____

7. W = ? _____
   F = 62.6 N _____
   d = 13 m _____

8. W = 13.2 J _____
   F = 2 N _____
   d = ? _____

9. W = 136 J _____
   d = 27.2 m _____
   F = ? _____

10. If 360 Joules of work are needed to move a crate a distance of 4 meters, what is the weight of the crate?

11. If a group of workers can apply a force of 1000 Newtons to move a crate 20 meters, what amount of work will they have accomplished?

12. If 68 Joules of work were necessary to move a 4 Newton crate, how far was the crate moved?

13. How much work is done in holding a 15 N sack of potatoes while waiting in line at the grocery store for 3 minutes.

II. Power

A. Sample Problems:

1. W= 500 Joules — Formula: _____
   t = 25 seconds — Substitution: _____
   P = ? — Answer with unit of measure: _____

2. P = 25 watts — Formula: _____
   W = 5000 Joules — Substitution: _____
   t = ? — Answer with unit of measure: _____

3. P = 170 watts — Formula: _____
   t = 20 seconds — Substitution: _____
   W = ? — Answer with unit of measure: _____

4. If a man moves a large box that weighs 10 Newtons 20 meters in 30 seconds, how much power was used?

B. Fill-in-the-blank:

1. _____ is the rate at which work is done.

2. When calculating power, you should use the formula P = _____ divided by _____. In this formula, "P" stands for power, ____ stands for work, and _____ for time.

3. The SI unit for Power is the _____.

C. Power Problems

4. W = 100 J	_____	5. W = 225 J	_____	6. P = 20 W	_____
t = 10 s	_____	P = 25 W	_____	t = 15 s	_____
P = ?	_____	t = ?	_____	W = ?	_____
7. W = 500 J	_____	8. W = 336 J	_____	9. W = ?	_____
t = 25 s	_____	t = ?	_____	t = 16.6 s	_____
P = ?	_____	P = 14 W	_____	P = 64 W	_____

10. A person weighing 600 N gets on an elevator. The elevator lifts the person 6 m in 10 seconds. How much power was used?

11. How much time is needed to produce 720 Joules of work if 90 watts of power is used?

12. If 68 W of power is produced in 18 seconds, how much work is done?

13. A set of pulleys lifts an 800 N crate 4 meters in 7 seconds. What power was used?