

What is Power?

Worksheet

Power is $P = W/t$, measured in watts (W), where W is work done in joules and t is the time taken in seconds. One watt equals one joule per second.

$$P = \frac{W}{t}$$

Questions

1. A device does 1000 J of work in 20 s. What is its power?
A) 50 W
B) 20 000 W
C) 0.02 W
D) 5000 W
2. What is the SI unit of power?
A) Joule
B) Newton
C) Watt
D) Pascal
3. If the work done stays the same but the time taken doubles, power
A) Doubles
B) Halves
C) Stays the same
D) Quadruples
4. 1 watt is equal to which of the following?
A) 1 J/s
B) 1 N/s
C) 1 kg/s
D) 1 m/s
5. A machine does 2000 J of work in 10 s. Find its power.
6. A motor lifts a load, doing 5000 J of work in 25 s. Find its power.
7. A sprinter does 300 J of work in 2 s. Find their power output.
8. Define: What is power in physics?
9. Define: What is the formula for power?
10. Define: What is the unit of power?

Answer Key

1. A) $50 \text{ W} - P = W/t = 1000/20 = 50 \text{ W}$.
2. C) Watt - Power is measured in watts, equal to J/s.
3. B) Halves - $P = W/t$, so doubling t halves P for the same W .
4. A) 1 J/s - By definition, $1 \text{ W} = 1 \text{ J/s}$.
5. $P = W/t = 2000/10 P = 200 \text{ W}$
6. $P = W/t = 5000/25 P = 200 \text{ W}$
7. $P = W/t = 300/2 P = 150 \text{ W}$
8. The rate at which work is done or energy is transferred: $P = W/t$.
9. $P = W/t$, where W is work in joules and t is time in seconds.
10. The watt (W), equal to one joule per second (J/s).

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