

Name: _____

Reintroducing GUSS SPH4C



GUSS has a procedure for solving problems.

First, he identifies his _____.

Then he identifies his _____.

Next, he _____ an equation that relates his Givens and his Unknown, rearranging it for the Unknown if necessary.

Finally, he substitutes his Givens into the equation and _____ for his Unknown.

Identify the Givens and the Unknown in the following problem:

A machine did 240 J of work in 60 s. Calculate its power output.

When you Select an equation, you are selecting the equation that _____

_____.

The equation that contains W , Δt , and P is:

This equation does not need to be rearranged. It is already _____.

_____.

But what if you needed to solve for W or Δt ?

If you want to solve for W , you need to _____
as the W . To get rid of a division, use multiplication:

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

$$P \square = \left(\frac{W}{\Delta t} \right) \square$$

$$P \square = \square$$

$$\text{or } W = \square$$

If you want to solve for Δt , you first need to get it out of the

_____ and *then* get rid of anything $P = \frac{W}{\Delta t} \rightarrow P\Delta t = W$
on the same side as it.

To get rid of multiplication, use division.

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

Finally substitute your Givens _____ and Solve.
Your solution must also contain units!

More Practice with GUSS Equation Bank

$$v = \frac{\Delta d}{\Delta t}$$

v = speed

Δd = distance

Δt = time

$$F = ma$$

F = force

m = mass

a = acceleration

$$E_k = \frac{1}{2}mv^2$$

E_k = kinetic energy

m = mass

v = speed

$$p = \frac{F}{A}$$

p = pressure

F = force

A = area

$$V = IR$$

V = voltage

I = current

R = resistance

More Practice with GUSS

Identify the Givens and Unknowns and Select an equation for each of the following problems. (Use the Equation Bank on the previous page.)

1. A circuit with a resistance of 4Ω is connected to power supply with a voltage of 6 V. Calculate the circuit through the circuit.

Givens:

Select:

Unknown:

2. A force of 15 N is applied to a surface area of 1 m^2 . Calculate the pressure.

Givens:

Select:

Unknown:

3. An object of mass 4 kg has a net unbalanced force of 12 N [East] acting on it. Calculate the acceleration of the object.

Givens:

Select:

Unknown:

4. Work is done on an object of mass 2 kg to increase its kinetic energy to 18 J. Calculate the speed of the object.

Givens:

Select:

Unknown:

1. Rearrange $v = \frac{\Delta d}{\Delta t}$ to solve for Δd . (Show your work!)

$$v \square = \left(\frac{\Delta d}{\Delta t} \right) \square$$

$$v \square = \square$$

$$\text{or } \Delta d = \square$$

2. Rearrange $F = ma$ to solve for a .

$$\frac{F}{\square} = \frac{m a}{\square}$$

$$\frac{F}{\square} = \square$$

$$\text{or } a = \square$$

3. Rearrange $p = \frac{F}{A}$ to solve for A .

$$p \square = \left(\frac{F}{A} \right) \square$$

$$p \square = \square$$

$$\frac{p \square}{\square} = \frac{F}{\square}$$

$$A = \square$$

4. Rearrange $V = IR$ to solve for R .