Part G: Answering Formula Questions with Significant Figures

Answering questions:
Whenever you write the answer to a question, answer with the LOWEST number of significant figures there are in the numbers

d = vt

T. I move a distance of 52.6 meters in a time of 23.7 seconds.
How many significant figures are there in the distance?

How many significant figures are there in the time?

How many should there be in the answer?

Find the speed:

Looking For	Formula
Already Know	
Answer in a complete sentence with correct significant figures	

U. I move at a speed of about 3 m/s for a time of 345.6 seconds.
How many significant figures are there in the speed?

How many significant figures are there in the time?

How many should there be in the answer? You will need to use scientific notation!

Find the distance:

Looking For	Formula
Already Know	
Answer in a complete sentence with correct significant figures	

V. I move at a speed of 4.32165 m/s for a time of 1.2345 seconds.
How many significant figures are there in the speed?

How many significant figures are there in the time?

How many should there be in the answer?

Find the distance:

Looking For	Formula
Already Know	
Answer in a complete sentence with correct significant figures	

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

W. I have a speed of 3.2 m/s and a mass of 45.678 kg.
How many significant figures should there be in the answer?

Find the kinetic energy:

Looking For	Formula
Already Know	
Answer in a complete sentence with correct significant figures	

X. I have a speed of 3.55 m/s and a mass of 2 kg. What is my kinetic energy?

Y. I have a speed of 3.0000 m/s and a mass of 2.0000. What is my kinetic energy?

Z. What makes problems X and Y different?

$$GPE = mgh \qquad \textbf{g = 9.8 m/s/s}$$

AA.[**Trick question, don't get fooled!]** I have a height of 12.0000 meters and a mass of 3.00000 kg. What is my gravitational potential energy, with the correct number of significant figures?

T.
How many significant figures are there in the distance?
3
How many significant figures are there in the time?
3
How many should there be in the answer?
3

Find the speed:
2.22 m/s

U.
1×10^3 meters
There is only *one* significant figure in the answer because there was only one significant figure in the speed.

V.
5.3351 meters
(there are 5 significant figures in the answer).

W. 2.30×10^2 Joules

X. 1×10^1 Joules (there is only one significant figure because there was only one in the mass)

Y. 12.638 Joules

Z. The number of significant figures in the answer

AA.3.5×10^2 Joules
(if you used $g = 9.8\ m/s^2$, then there are only two significant figures in the answer!)