

Tips on Working Physics Problems

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September 19, 2019

Here are some general principles you should observe when working physics problems for homeworks or exams.

1. **Do your work in pencil.** People inevitably make mistakes when working problems in physics, engineering, and mathematics. Use a pencil to do your work so you can erase. If you use a pen, you'll have to scratch out mistakes, and your work will be a big mess.
2. **Put the correct units on your answer.** A numerical answer is not correct without proper units.
3. **Calculate your final answer.** If the problem calls for a numerical answer, then calculate it. For example:
 - *Wrong:* $v = \frac{2.3 \text{ m}}{6.54 \text{ sec}}$. *Correct:* $v = 0.3517 \text{ m/s}$.
4. You're taught in mathematics to write numerical answers as fractions, and to write them with square roots and factors of π . That's correct and proper in mathematics, but in physics we are generally dealing with *measured* quantities, not with exact numbers. You should always calculate a numerical answer. For example:
 - *Wrong:* $x = \frac{4}{3}$ meters. *Correct:* $x = 1.333$ meters.
 - *Wrong:* $v = 8\sqrt{5}$ m/s. *Correct:* $v = 17.89$ m/s.
 - *Wrong:* $y = \frac{2\pi}{7}$ cm. *Correct:* $y = 0.8976$ cm.
5. **Use proper mathematical notation.** For example:
 - *Wrong:* $2.67 * 3.14$. *Correct:* 2.67×3.14 or $2.67 \cdot 3.14$ or $(2.67)(3.14)$.
 - *Wrong:* 1.23E6. *Correct:* 1.23×10^6 .
 - *Wrong:* $10 \wedge 15$. *Correct:* 10^{15} .

Please follow *American* mathematical notation. For example, the radix symbol (decimal point) is a period (.), *not* a comma.

6. **Calculate your answer to 3 or 4 significant digits** for most problems in this class. Do not round off any numbers until you get to your final answer.