

# Tips on Working Physics Problems

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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  $\pi$ . 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:*  $2.67 \times 3.14$  or  $2.67 \cdot 3.14$  or  $(2.67)(3.14)$ .
  - *Wrong:* 1.23E6. *Correct:*  $1.23 \times 10^6$ .
  - *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.