Harold's GUESS Method
Cheat Sheet

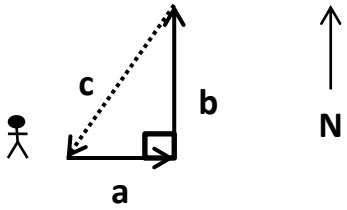
22 September 2025

How to Solve Physics Word Problems

Modified GUESS Method	1. Read 2. Diagram 3. **G**ivens 4. Observations 5. **U**nknowns	6. **E**quations 7. **S**olve 8. **S**ubstitute 9. Double-Check

Scenario

A marching band cadet marches on a football field.
First, he marches 10 yards East, then 40 feet North.
What is the shortest distance he must march to return to where he started?

#	Step	Example
	1. Carefully **read** the problem. Translate each word of each sentence into math.	Reread the problem several times to make sure you did not miss anything.
	2. Draw a **diagram**. Clearly label everything.	
G	3. Write down the **givens** as variables with units. What information did they provide? Are any of them extraneous?	a = 10 yards East b = 40 feet North
	4. Calculate **observations** or easily derived information. Don't forget unit conversions for consistency.	$10 \text{ yards} \times \left(\frac{3 \text{ feet}}{1 \text{ yard}}\right) = 30 \text{ feet}$
U	5. Write down the **unknowns**. What are they asking for?	The shortest distance is a straight line, or the hypotenuse. 'c'. c = ____?____ <units>
E	6. Recall relevant **equations** and formulas.	Since the path marched is a right triangle, we can use the Pythagorean Theorem: $a^2 + b^2 = c^2$
S	7. **Solve** symbolically for the unknown variable. Reduce algebraically to the simplest form. Do not substitute until fully solved.	$a^2 + b^2 = c^2$ $c = \sqrt{c^2} = \sqrt{a^2 + b^2}$
S	8. **Substitute** the givens into the solved formula. Use a calculator as needed to calculate the answer.	a = 30 feet b = 40 feet $c = \sqrt{(30 \text{ feet})^2 + (40 \text{ feet})^2} = 50 \text{ feet}$
✓✓	9. **Double-check** your work. Ask yourself if the answer is reasonable and makes sense. Don't forget the units. Box in your answer.	The shortest distance the cadet must march is 50 feet.

See also: GUESS Method for problem-solving.

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