**Harold’s GUESS Method**

**Cheat Sheet**

22 September 2025

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| **How to Solve Physics Word Problems** |
| **Modified GUESS Method** | 1. Read
2. Diagram
3. **G**ivens
4. Observations
5. **U**nknowns
 | 1. **E**quations
2. **S**olve
3. **S**ubstitute
4. Double-Check
 | Drum Major Silhouette Stock Illustrations – 48 Drum Major Silhouette Stock  Illustrations, Vectors & Clipart - Dreamstime |
| **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** |
| Person Reading Icon Vector Art, Icons, and Graphics for Free Download | 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. |
| Cone Clip Art at Clker.com - vector clip art online, royalty free & public  domain | 2. Draw a **diagram**.  Clearly label everything. | **a****b****c****N** |
| **G** | 3. Write down the **givens** as variables with units. What information did they provide?  Are any of them extraneous? | a = 10 yards Eastb = 40 feet North |
| image of Unicode Character 'EYE' (U+1F441) | 4. Calculate **observations** or easily derived information. Don’t forget unit conversions for consistency. | $$10 yards×\left(\frac{3 feet}{1 yard}\right)=30 feet$$ |
| **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$$c=\sqrt{(30 feet)^{2}+(40 feet)^{2}}=50 feet$$ |
| **✓✓** | 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](https://physics-network.org/what-is-the-guess-method-for-problem-solving/) for problem-solving.