

---

## Student Success \ Math & Physics and Biology

---

KAVEH FARROKH (PH.D.)

# Math Problem Solving Strategies: Experts vs. Novices

### WORKING MEMORY

- Paper pencil techniques put the greatest burden on working memory.
- Distribution (transforming one or more factors into a series of sums or differences) and factoring (transforming one or more factors into a series of products or quotients) put an intermediate burden on working memory.
- Retrieval of numerical equivalents from long-term memory put the least burden on working memory.

### SOLVING NEW/CHALLENGING PROBLEMS

To solve math, physics, etc. problems, You can use five steps:

1. Identify the type of problem you have.
2. Translate the structure of the problem into your own words. This is a novice's weakest area in mathematics in general.
3. List your given facts.
4. Identify and list the conceptual tools (or formulas) needed to solve problem.
5. Solution monitoring: checking your steps. Eliminates tunnel vision and helps avoid small mistakes.