

2. You Can

In physics class, we practice the philosophy of our *5-Step Method* for solving seemingly intractable problems (go to website navigation bar and see *Curricular Exhibit II. The 5-Step Method*). The method was designed at John Jay for John Jay to serve as both guide and grading rubric for all written work throughout the two-course sequence of required calculus-based physics.

The first three steps of the *5-Step Method* are deliberately designed to be tasks that can be performed before computing. They are scaffolded techniques for setting a table, even or especially before the menu is chosen. By Step 3, the following choice commonly crawls into consciousness: “Should I be considering the *sine function* or the *cosine function* in this context?” The two functions are as similar and related as their names sound, but their characteristics differ subtly.

In our physics teaching experience, this *sine/cosine* dilemma exemplifies a choice sufficiently stark to shut us down before we know it. Our survival instinct cries in defense, “I have no idea what to do!” Really, however, we have two impressively topical ideas; we are scared to pick the wrong one. What to do? At John Jay, we advise: For the moment, set aside concerns for right, wrong, and permanent commitments appertaining thereunto.

Stop trying to pick the “right” choice. Pick the choice, rather, that *leads to more choices*. When stuck on a step, select the path that will lead to another step. Sometimes the choice can be as simple as selecting the function with which you have more experience. As you practice more and more, you will find more sophisticated criteria for choosing. You might find, for example, that the *sine* of certain common numbers happens to equal *zero*, so it is sometimes more productive just to choose *cosine* and give yourself more numbers with which to play. Well-played, Naila!