

Quiz #1

Some suggestions for solving problems in mathematics and in life:

1. Make sure you know what questions are being asked. This is the most important step in solving problems!!
2. Break difficult problems into smaller, more manageable problems.
3. Don't be afraid to make mistakes. Sometimes they lead to good ideas.
4. Talk to other people about the problem. A new perspective can make all the difference.
5. Have fun and be creative.

Below is a story that will help kick-start your brain into "problem-solving mode". Read the story and do your best to solve the problem posed. This is a completion grade, so don't worry too much about your answer being totally correct (feel free to worry about it a little, though). You are encouraged to work in groups. However, each person should turn in his or her own work.

An important skill when attempting to solve a problem is being able to determine which information is important and which information is superfluous. On your paper, first make a list or write a paragraph describing what you feel is the **important** information needed to solve the problem. Then write your solution or your best attempt at a solution.

The Story

On an archeological dig near the highlands of Tibet, Alley discovered an ancient oil lamp. Just for laughs she rubbed the lamp. She quickly stopped laughing when a huge puff of magenta smoke spouted from the lamp, an ornery genie named Murray appeared.

Murray, looking at the stunned Alley, exclaimed, "Well, what are you staring at? Okay, okay, you've found me; you get your three wishes. So, what will they be?"

Alley, although in shock, realized what an incredible opportunity she had. Thinking quickly, she said, "I'd like to find the Rama Nujan, the jewel that was first discovered by Hardy the High Lama."

"You got it," replied Murray, and instantly nine identical-looking stones appeared.

Alley looked at the stones and was unable to differentiate any one from the others. Finally she said to Murray, "So where is the Rama Nujan?"

Murray explained, "It is embedded in one of these stones. You said you wished to find it. So now you have to find it. Oh, by the way you may take only one of the stones with you, so you had best be careful how you choose!"

"But they look identical to me. How will I know which one has the Rama Nujan in it?" Alley questioned.

"Well, eight of the stones weigh the same, but the stone containing the jewel weighs slightly more than the others," Murray responded with a devilish grin.

Alley, now getting annoyed, whispered under her breath, "Gee, I wish I had a balance scale."

Suddenly a balance scale appeared.

"That was wish two!" Murray declared. "Oh and by the way, that scale may be used only once. You should really be more specific with your wishes."

Alley, frustrated, and without thinking, replied, "Well now I wish I had another scale!"

A puff of smoke appeared in front of her and quickly cleared to reveal yet another scale. "Ah rats!!" exclaimed Alley, "I suppose this one is just like the first, huh?"

"Indeed it is," replied Murray, "it may only be used once, and thank you for making your three wishes so quickly. I shall retire to my lamp now." And with another puff of smoke Murray was gone.

So, Alley may use each of the two balance scales exactly once. Is it possible for Alley to select the slightly heavier stone containing the Rama Nujan from among the nine identical-looking stones? Explain why or why not.