

Word Problems for the Wise

It all started like this: Zella was doing some experiments in her cosmetics lab. Her mom called her for dinner, and in her haste to get to the table, Zella left her beauty solution heating on the Bunsen burner.

As everyone knows, the ingredients for Zella's products are both rare and costly. Her *Nighttime Beauty Slime* sells for \$39.98 per ounce. Since I know Zella well, she gives me a \$10.12 discount per ounce, but it's still pretty steep!

In any case, Zella left her solution boiling and evaporating for several hours, during which the volume was reduced from 324.5 mL to 278.4 mL. When she returned to the lab, Zella called her associate, Ava to see what she had gotten on number 15 in the math homework. As she spoke, she noticed the bubbling solution and moved to cut off the burner. As she reached for it, it began to put out a bluish smoke.

"Cough! It's... Cough! Smoking... Must... get it off... ahhhh..." whispered Zella as she slowly crumbled to the floor.

Alarmed, Ava quickly strapped on her jet-pack and rocketed off toward her friend's house. She arrived to find Zella sitting up in a daze.

"I feel... strange," she mumbled.

To Ava's amazement, Zella's face, her body, even her clothes started a transformation. Zella began to age turning from a young girl to a grandmother.

"I don't know what's happening... Ava have you done your homework?... Hello Dearie! Would you like some cookies?" said Zella as she underwent her metamorphosis.

"I...I... well, yes I think a cookie would be good... Wait a minute, Zella, we've got trouble."

Quickly, Ava went to work on an antidote. She mixed 435.6 mL of pine tar with 389.2 mL of oatmeal juice and 656.4 mL of goat grease. Once these ingredients were blended, she poured off half of it into a garbage can, which caught fire and quickly melted to the floor.

"Hmmm..." said Ava doubtfully.

"It's nearly time for my favorite show, *Focus on Needlepoint*," said the new, old, Zella, looking at her pocket watch.



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Questions for you:

1. What was the full mass of the remedy, before she poured part of it into the trash can?
2. How much of the remedy was poured into the can and how much was left?
3. How much of the original solution **evaporated** while it was on the burner?
4. What does an 8 ounce cup of *Nighttime Beauty Slime* cost? What would you expect to pay for a pint?
5. How much do I pay per ounce?
6. How much would I pay for a cup?
7. If she had used twice as much goat grease, how much would that be?
8. If **Focus on Needlepoint** comes on at 5:20 PM, and runs for 3 hours and 15 minutes, what time will it end?