1. **(2 points)**
Shikha is driving from Rickards to the beach and Srividya is driving from the beach to Rickards. The distance between the two locations is 480 miles. There is a mile marker every 10 miles, and the starting mile marker at Rickards is 17, increasing as you go towards the beach. If Shikha is driving at a speed of 50 miles per hour and Srividya is driving 70 miles per hour, at which mile marker will they pass each other at?

2. **(2 points)**
Express $0.0\overline{17}$ as a fraction in simplest terms.

3. **(2 points)**
Sruthi was in the mood to throw a party. She invited all of her friends to the party. On the same day, Karina also had a party. Ashley, who was invited to both parties realized that if two people from Karina's party went to Sruthi's party, then Sruthi would have thrice the amount of people at her party than Karina's. If the number of people present at both parties combined is less than 16, but greater than 8, how many people were originally at Sruthi's party?

4. **(3 points)**
Compute the sum of the positive composite factors of 1001.

5. **(3 points)**
During quarantine, Nitish decided to do some work in his AOPS book. If he completes one seventh of a chapter in 20% of an hour and there are $2(2^3 + 3)$ chapters, how many seconds will Nitish spend working on his AOPS book (assuming he finishes the entire book from start to finish)?

6. **(3 points)**
How many ways are there to arrange the letters in ALGEBRA?

7. **(3 points)**
Ananya is travelling to the sun in Inspector Spacetime's spaceship can travel 56390400 ft every minute. Find the speed of the spaceship in miles per second. Express your answer in scientific notation. (Hint: There are 1760 yards in a mile)

8. **(4 points)**
Melissa changes her profile picture every other day. If she changed her profile picture on May 1st, how many times did she change it in May and June?

9. **(4 points)**
Shrung wants to get his name officially changed to Shrungbob Square Pants. There is a flat fee of $80 and it costs $17 for each added or changed letter without distinction, with no regards to spaces. Shrung only has $40, so he couldn't change his name. However, he found a job at the Krab Krusty and gets paid $10 an hour. With school, Shrung can only work 3 hours every day. If he works only on weekdays and started working on Wednesday, on what day of the week will he get enough money to change his name?

10. **(4 points)**
Karthik and Annika are having a smoothie drinking contest. They both have 3 gallons of a strawberry smoothie and whoever finishes first is the winner. If Karthik drinks at a rate of $\frac{1}{4}$ pint per $\frac{1}{4}$ minute and Annika drinks at a rate of 6 fluid ounces per 24 seconds, how many minutes does the winner finish before the loser? (Round to the nearest tenth)

11. **(4 points)**
Ankitha's business placed two orders from McDonald's for a retreat. The first order was for 21 McChickens and 16 Big Macs and totaled $67. The second order was for 19 McChickens and 26 Big Macs and totaled $87.70. What is the total cost of one McChicken and one Big Mac?

12. **(5 points)**
Eric is having some trouble understanding the difference between a consonant and a vowel, so he decides to give consonants a value of 1 and vowels a value of 2. He calculates the sum of the values in "I love doing math everyday" but gets the value of $(5! \cdot 2)/5$. How far off is Eric from the real value of the statement? (Note: Disregard the spaces between the words for calculations)

13. (**5 points**)

Ms. Fig has two 2-liter beakers, each containing a solution of nether wart and water. Solution A is 10% nether wart, while Solution B is 24% nether wart. Ms. Fig pours a certain amount of Solution A and a certain amount of Solution B into a glass, forming a 3.5-liter solution that is 12% nether wart. Then she mixes the remaining amounts of both solutions in another bucket. Find the concentration of nether wart in this bucket, as a fraction in simplest terms.

14. (**5 points**)

A survey is conducted about people's favorite book universe on 150 people. 107 people said Percy Jackson, 93 people said Harry Potter, and 76 people said Shadowhunters. If 65 people like both Percy Jackson and Harry Potter, 51 people like both Percy Jackson and Shadowhunters, and 38 people like both Harry Potter and Shadowhunters, how many people like all three series or neither of the series?

15. (**5 points**)

Siri invests $100,000 for one year. Part is invested at 8% interest per year and the rest is invested at 6% per year. Siri earns $7,250 after one year. How much did Siri invest at 8%?