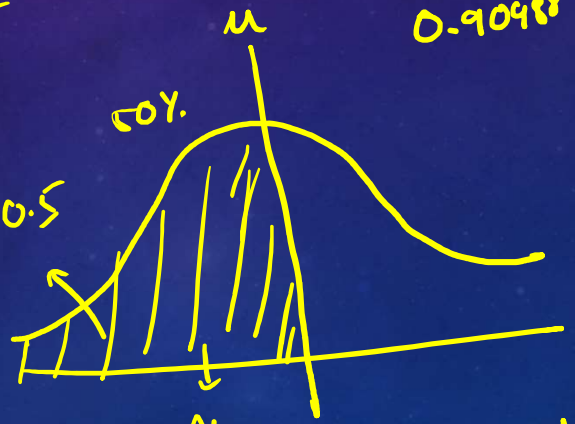
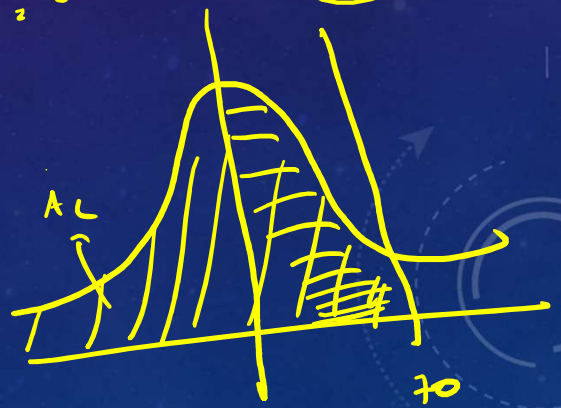
For some computers, the time period between charges of the battery is normally distributed with a mean of 50 hours and a standard deviation of 15 hours. Rohan has one of these computers and needs to know the probability that the time period will be between 50 and 70 hours.

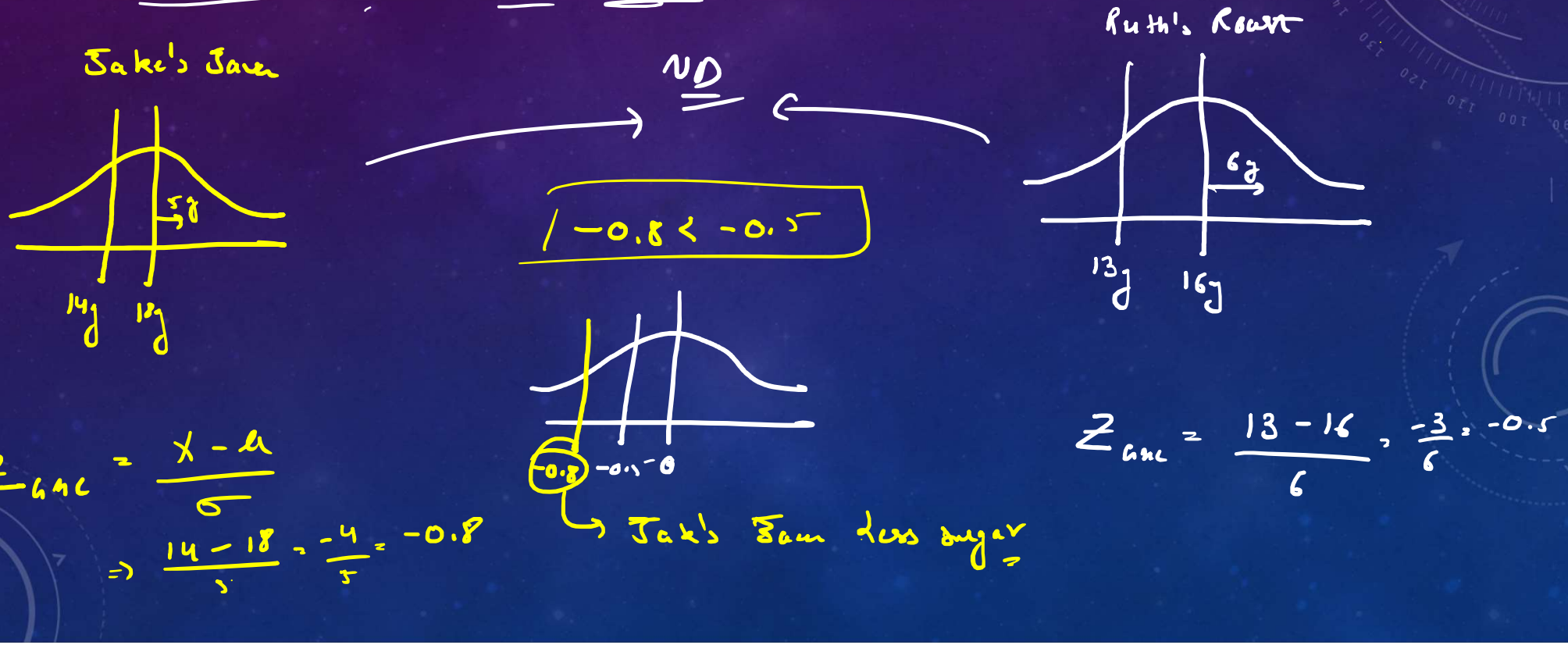




Nutritionists measured the sugar content (in grams) for 32 drinks at Jake's Java coffee shop. The drinks had a mean of 18g and a standard deviation of 5g, and the distribution was roughly symmetric.

A Grande Mocha Cappuccino at Jake's Java contains 14g of sugar. Calculate the standardized score (z-score) for the Grande Mocha Cappuccino.

A different coffee shop called Ruth's Roasts serves drinks that contain a mean of 16g of sugar with a standard deviation of 6g. A Grande Mocha Cappuccino at Ruth's Roasts contains 13g of sugar. Assuming that the distribution of sugar amounts have approximately the same shape, at which shop does this drink have less sugar relative to the other drinks at its respective store?



$$z_{Jake} = \frac{x - \mu}{\sigma} \Rightarrow \frac{14 - 18}{5} = \frac{-4}{5} = -0.8$$

$$z_{Ruth} = \frac{13 - 16}{6} = \frac{-3}{6} = -0.5$$