

Name: _____

Names of collaborators: _____

Instructions. Each of the scenarios below is based on a real-life situation involving percentages. Answer each question. In some cases, additional information is needed in order to answer the question. You may use Google or some other means to obtain the needed information; just make sure to state explicitly the additional information you are using, and cite the source. In other cases, there is superfluous information provided that is not necessary to answer the question.

1. The hotel where I am staying for a conference in Boston charges \$165 per night. In addition, the state of Massachusetts imposes a 5.7% hotel tax, and the city of Boston imposes a 2.75% convention center tax and a 6% city tax. I can be reimbursed for a maximum of \$265 per day. After paying for the hotel (with taxes), how much will I have left over for meals each day?
2. I have a \$25 gift card to the Campus Store, and there is a 20%-off sale for faculty and staff. I only have \$1 on me, so I have a max of \$26 dollars I can spend. Given that there will be a sales tax, what is the maximum price of an item I can buy?
3. I spent \$120.32 at Meijer today, and my receipt says, "You saved \$38.63!" What percentage of my total cost (that is, the amount I would have spent had nothing been on sale) did I save?

4. In 2019, the U.S. adult population was 256 million, and the percent of the population who was Christian was estimated to be 65%.
- (a) About how many adults in the U.S. were Christian in 2019?
- (b) The percentage of adult Christians in 2019 was down 12 percentage points from a decade earlier. What percentage of the U.S. adult population was Christian in 2009?
- (c) The number of adults in the U.S. was 233 million in 2009. About how many of them were Christian?
5. Recently, Walmart decreased the amount of paper towels in its each Great Value paper towel roll, from 168 sheets per roll to 120, while keeping the price constant at \$14.97. What is the relative decrease in the amount of paper towels per roll?
6. The price of eggs went up 60% this past year (2022), due to an increase in demand and a decrease in supply (due to the avian flu). If the price drops 37.5% this coming year (2023), will the price be higher, lower, or about the same as it was a year ago (at the beginning of 2022)?

7. Tillamook family-size ice cream cartons decreased in size from 56 ounces to 48 ounces earlier this year but kept the price at \$6.
- (a) What is the relative decrease in the amount of ice cream?
- (b) What is the absolute increase in the price per ounce?
8. A month ago, President Biden's approval rating was 41.5%, meaning that, according to polls, 41.5% of Americans approved of his work as president. Right now his approval rating is 43.9%. What is the absolute change in his approval rating, in percentage points?
9. Ashley, who cuts my hair, charges me \$35 for a cut. I meant to tip her 20% and gave her \$47.
- (a) What percent did I actually tip her?
- (b) How much should I have given her (for the cut and a 20% tip)?