

Exercises

1. Jerry Feingold wants a program that will help him calculate the amount to tip a waiter at a restaurant. The program should subtract any liquor charge from the total bill and then calculate the tip (using a percentage) on the remainder. Finally, the program should display the tip on the screen. Desk-check your solution's algorithm using \$85 as the total bill, \$20 as the liquor charge, and 20% as the tip percentage. Then desk-check it using \$35 as the total bill, \$0 as the liquor charge, and 15% as the tip percentage. (See Appendix B for the answer.)
2. Party-On sells individual hot/cold cups and dessert plates for parties. Sue Chen wants a program that allows her to enter the price of a cup, the price of a plate, the number of cups purchased, and the number of plates purchased. The program should then calculate the total cost of the purchase, including the sales tax. Finally, the program should display the total cost on the screen. Desk-check your solution's algorithm using \$0.50 as the cup price, \$1 as the plate price, 35 as the number of cups, 35 as the number of plates, and 2% as the tax rate. Then desk-check it using \$0.25, \$0.75, 20, 10, and 6%. (See Appendix B for the answer.)
3. Modify the answer to Exercise 1 as follows. Jerry will be charging the total bill, including the tip, to his credit card. Modify the solution so that, in addition to calculating and displaying the appropriate tip, it also calculates and displays the amount charged to Jerry's credit card. Desk-check the algorithm using \$50 as the total bill, \$5 as the liquor charge, and 20% as the tip percentage. Then desk-check it using \$15 as the total bill, \$0 as the liquor charge, and 15% as the tip percentage.
4. Wilma Peterson is paid by the hour. She would like a program that calculates and displays her weekly gross pay. For this exercise, you do not need to worry about overtime pay, as Wilma never works more than 40 hours in a week. Desk-check your solution's algorithm using \$10 as the hourly pay and 35 as the number of hours worked; then desk-check it using \$15 and 25.
5. Addison Smith receives an annual commission, which is calculated by multiplying her annual sales by a commission rate. She wants a program that calculates and displays the amount of her annual commission. Desk-check your solution's algorithm using \$24,000 and 8% as the annual sales and commission rate, respectively; then desk-check it using \$56,000 and 3.5%.
6. Aiden Turner is paid every Friday. He is scheduled to receive a raise next week; however, he isn't sure of the exact raise percentage. He wants a program that calculates and displays his new weekly pay. Create two algorithms for this problem: one that does not use a processing item and one that does. Desk-check each algorithm twice. First, use \$500 and 4% as the current weekly pay and raise percentage, respectively; then use \$600 and 2%.
7. When Jacob Steinberg began his trip from California to Vermont, he filled his car's tank with gas and reset its trip meter to 0. After traveling 324 miles, Jacob stopped at a gas station to refuel; the gas tank required 17 gallons. Jacob wants a program that calculates and displays his car's gas mileage at any time during the trip. The gas mileage is the number of miles his car can be driven per gallon of gas. Desk-check your solution's algorithm using 324 as the number of miles driven and 17 as the number of gallons used; then desk-check it using 280 and 15.
8. Karen Mills lives in a state that charges a sales tax. She wants a program that calculates and displays the amount of sales tax due on a purchase. Desk-check your solution's algorithm using \$35.95 and 10% as the purchase amount and sales tax rate, respectively; then desk-check it using \$112.50 and 6%.

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