

Name: \_\_\_\_\_

Show all work and simplify all answers before circling/boxing them. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

**Due next class.** Students who turn assignments in late (or do not attempt a problem) forfeit their ability to rewrite those problems for credit.

- (1) Erin took her family to visit Ocean City, Maryland. When they made their one-night hotel reservation, they were quoted a rate of \$95 per night before tax. When they checked out, their total bill was \$110.85, which included the room tax and a \$3.50 charge for a candy bar from the in-room bar. Determine the tax rate for the room.
- (2) An emergency plumber charges \$65 as a call-out fee plus an additional \$75 per hour. He arrives at a house at 9:30 and works to repair a water tank. If your budget is \$200, what's the longest you can hire him for?
- (3) To convert temperatures in Fahrenheit to temperatures in Celsius, take the temperature in degrees Fahrenheit, subtract 32, then divide the result by 1.8. This gives the temperature in degrees Celsius.
  - (a) Write a formula that can convert  $F$  degrees Fahrenheit to  $C$  degrees Celsius. Use it to convert  $50^\circ$  F.
  - (b) Write a formula that can convert in the opposite direction. Use it to convert  $25^\circ$  C
- (4) Alex's dad, Andrew, is planning a surprise birthday party for them. He will hire a bouncy castle, and will provide party food for all the guests. The bouncy castle costs \$150 for the afternoon, and the food will cost \$3 per person. Andrew has a budget of \$300. Write an equation and use it to determine the maximum number of guests he can invite.
- (5) A construction company that your friend works for built 400 houses last year. Because of rapid growth in the area, your friend's boss tells them that their crew must increase the amount of houses they build by at least 30 percent this year. How many houses do they have to make sure their team builds?