

# CTE Math Assessment

## Part 1: Short Answer

You may use a scientific calculator (a calculator that has parentheses) for this test. For each question, use equations, complete sentences, and pictures or charts (where appropriate) to explain your solution.

1. You receive a gift card for \$100 for a local sandwich shop. You always order the same thing, and the total cost of each lunch is \$7.34. How many completely free lunches can you get with your gift card? How much money will be left on the card?
2. On Monday, you start work at 8:50 AM and finish work at 4:05 PM. Your rate of pay is \$11.75 per hour. How much money should you be paid for Monday's work?
3. You currently pay \$500 per month to rent a rectangular office space for your small business. Your office is 8 yards long and 12 yards wide. You recently heard that a new office complex is offering space for small businesses at a rate of \$7 per square foot per year. If you rent an office in the new complex which is the same size as your current office, what would your monthly rent be? Would it be worthwhile to move?
4. Tom wants to buy items costing \$17.13, \$58.25, and \$93.17. He earns \$9.25 an hour doing odd jobs. If fifteen percent of his income is put aside for other purposes, how many hours must he work to earn the money he needs for his purchases?
5. It costs \$6.72 for a whole box of Cheerios containing 32 cups of cereal. You use  $\frac{5}{8}$  of a cup of Cheerios in your trail mix. What is the cost of the Cheerios that you used in your mix?
6. Create a situation described by  $24x - 162 = 246$ . Include a question whose answer is  $x$ . Solve the problem and explain what your answer means in the context of the problem you wrote.
7. Use a scientific calculator to work the following problems. You should be able to use operations and parentheses so that you enter the entire expression and only press the equal or enter button once. Round each answer to two decimal places.

(a)  $\sqrt{15^2 - 5^2}$

(b)  $\frac{872}{\frac{123}{7}}$

(c)  $\frac{872}{\frac{123}{7}}$

(d)  $\pi \left(5\frac{1}{4}\right)^2 \left(13\frac{7}{16}\right)$

(e)  $\frac{0.04 \cdot 987.25}{1 - (1 + 0.04)^{-7}}$

## Part 2: Performance Assessments

For this portion of the exam, you will need access to a computer with a spreadsheet, metric and U. S. customary length measuring devices (meter sticks / yard sticks / tape measures / rulers), scissors, and string or yarn.

1. **Write a Memo.** Your boss at a local bank branch wants to give away free promotional t-shirts to everyone who comes into the bank next month. She wants you to figure out how much this will probably cost and how many t-shirts of each size she should order.

Begin by explaining what assumptions you need to make to figure this out. Choose numbers that are appropriate for your assumptions. Explain your computations and your answer.

2. **Create an Invoice.** You own a landscaping service company, and you need to send an invoice for all the work your company did for a fancy hotel during the month of July. Make up an invoice with at least 5 different service occasions. In your spreadsheet, include a column for the date the service was provided, the service description, the rate for each kind of service, the quantity of time or items provided, and the subtotal listing the cost of each service date. At the bottom of the spreadsheet, include a total of all items, taxes, and the grand total. Invent a name and find a clip art logo for your company. Your invoice should also include a (fictitious) address, phone number, and email address so that your client can contact you with questions.

3. **Measurement Challenge.** Measure strings with the lengths indicated below and cut them to the correct length.

(You should be able to select appropriate measuring tools for each challenge.)

Challenge 1. Length:  $\frac{15}{6}$  foot

Challenge 2. Length: 15.42 centimeters

Challenge 3. Length: 0.3 meters

Challenge 4. Length  $4\frac{5}{8}$  inches

Challenge 5. Length:  $\frac{5}{12}$  yard

Challenge 6. Length: 49 millimeters