

# Math Pretest

## 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 \$50 for a local sandwich shop. You always order the same thing, and the total cost of each lunch is \$6.17. 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 10:35 AM and finish work at 3:20 PM. Your rate of pay is \$9.50 per hour. How much money should you be paid for Monday's work?
3. You currently pay \$650 per month to rent a rectangular office space for your small business. Your office is 15 yards long and 10 yards wide. You recently heard that a new office complex is offering space for small businesses at a rate of \$5 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 \$25.35, \$50.69, and \$85.96. He earns \$6.50 an hour doing odd jobs. If ten 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 \$2.39 for a whole box of Cheerios containing 16 cups of cereal. You use  $\frac{3}{4}$  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 the equation  $12x + 17 = 65$ . 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)  $\sqrt{17^2 + 5^2}$

(b)  $\frac{121}{\frac{166}{5}}$

(c)  $\frac{121}{\frac{166}{5}}$

(d)  $\pi \left(3\frac{1}{2}\right)^2 \left(12\frac{5}{8}\right)$

(e)  $\frac{0.07 \cdot 650.23 \cdot 9500}{1 - (1 + 0.07)^{-5}}$

## 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, tape, and scrap paper.

1. **Write a Memo.** Your company is planning to offer a promotional prize that supplies the winning customer with free gasoline for a car for a year. Your boss would like to know how much this will cost the company. Write a memo to your boss using complete sentences and paragraphs.

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 have started a catering company, and your first client wants you to cater a party for 150 people. Use a spreadsheet to create an invoice. Choose a menu with at least 5 different items, making sure that there will be enough food for everyone. In your spreadsheet, include a column for the item description, the cost per item, the quantity of items ordered, and the subtotal listing the cost of each item. At the bottom of the spreadsheet, include a total of all items, your service charge, 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 and cut out paper rectangles with the dimensions indicated below. You may need to tape pieces of paper together.

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

Challenge 1. Length:  $\frac{4}{3}$  foot, width: 3.67 centimeters.

Challenge 2. Length: 0.41 meters, width  $2\frac{3}{8}$  inches.

Challenge 3. Length:  $\frac{3}{4}$  yard, width: 52 millimeters.