



Going Beyond the Basics

Math Workbook

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What Do You Mean? I Have to Know Math to be a . . .

In your group, identify the types of math skills a person would need if he/she wanted to be a . . .

Job	Math Skills Needed
Cashier	
Stockperson	
Nurse	
Pilot	
Hair Stylist	
Groundskeeper	
Bookkeeper	
Carpenter	
Landscaper	
Realtor	

Pros and Cons Scale

The Issue: What Job Should Sandra Choose?

Sandra is a single mother of two pre-school aged children. After completing many job applications and going on many interviews, she has just received two exciting job offers! The first is with a local organization that offered her a starting salary of \$10.50 per hour, plus benefits for a 40-hour work week. The second job offer is with a large, international organization in a neighboring city. This organization offered her \$11.75 per hour, also with benefits.

Sandra needs to consider her options. Her childcare provider lives in her neighborhood and charges \$5.00 per hour. Sandra does not have a car so she will need to rely on public transportation to get to work. Bus fare to the first job would cost her \$1.00 each way and take her approximately 15 minutes to get to work. To go to the city, Sandra would need to take a bus and the Metro, which she estimates would be at least an hour each way and would cost her \$5.75 round trip each day.

Compare what Sandra's net weekly salary would be after she deducts her weekly expenses for child care and transportation. Which job should Sandra choose? Why?

<u>Pros</u>		<u>Cons</u>	
Local Job	City Job	Local Job	City Job

Don't Forget My Mileage Check!

Christopher has been hired as a sales representative for a national book company. His office is based in Dallas, TX, but his job requires a lot of travel each month. In order to be reimbursed for his mileage, he must submit an expense report. He is reimbursed \$0.485 cents for each mile he drives to work. Use a map or a program on the Internet, such as MapQuest, to calculate the number of miles driven. Use Dallas as Christopher's base and each drive as a round-trip.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Tyler	2	3	4 Fort Worth	5	6
7	8 Waco	9 Lebanon	10	11 Fort Worth	12	13
14	15	16 Paris	17	18 Abilene	19	20
21	22 Plano	23	24	25 Austin	26	27
28	29 Waco	30	31			

Texas Mileage Chart

All mileage originates from Dallas, TX

Abilene	181
Austin	197
Fort Worth	34
Gainesville	70
Lebanon	25
Paris	105
Plano	19
Waco	97
Wichita Falls	138

There's Got to be a Better Way!

Read the following information and answer the questions below.

The emergency room (ER) is keeping a record of all incoming calls. The ER wants to improve their customer service in order to be designated a superior facility. The staff was reviewing the morning call information. The first 30 minutes of the day, three calls came into the ER. That was from 5:30 – 6:00 a.m. From 6:00 – 7:00 a.m., six calls were answered. During the remaining hours until noon, 36 calls were received: six calls from 7:00 – 8:00 a.m., 18 calls from 8:00 – 9:00 a.m., 21 calls from 9:00 – 10:00 a.m., 26 calls from 10:00 – 11:00 a.m., and 15 calls from 11:00 a.m. until noon. During the first hour and a half and between 8:00 – 9:00 a.m., all calls were answered within 10 seconds. The rest were answered within 20 seconds. Between 9:00 – 10:00 a.m. 81% were answered within 10 seconds and 100% were answered within 20 seconds. Between 10:00 and 11:00 a.m., 88% were answered in 10 seconds, and 96% were answered within a minute. Four percent of the calls rang over a minute, or the caller hung up prior to the phone being answered. From 11:00 a.m. until Noon, 87% of the calls were answered within 10 seconds; 93% were answered within 20 seconds; and the rest of the calls were answered within 30 seconds.

The staff looked again at the information and shook their heads. Were they doing well or not? That was the ultimate question.

1) In your opinion, is the ER doing well? Why or why not?

2) Is there room for improvement? Is there a problem at a specific time?

3) What is the busiest time for the ER?

4) Is there a better way to display this data? In your groups, organize this information in a manner that would be easier to understand.

A Really Sweet Assignment Project Sheet

*Don't eat the data until we are done!
Please use clean hands, paper plates and napkins as needed.*

Objective To gain experience in collecting, recording, and using data

Materials Paper, markers, pencils, Skittles™, M & M's™, sugar-free sourballs (for those students who cannot eat sugar), graph paper, rulers, paper plates, napkins

Your Mission

1. Read through the questions below.
2. Plan how you will record your data.
3. Make a record of your inventory. You may use a chart, list, graph, written record or whatever form of recording you prefer.
4. Answer the questions. Remember to show your work!

Questions

1. Before you open your bag, predict how many M & M's™ you will find. Write your prediction below. Predict how many of each color, you will find in your bag. Write your prediction below.
2. How many of each color are in your sample?
3. What is the fraction that represents all the candies found in your sample? Why do we say that this fraction equals one? One what?
4. Write the fractions that describe the amount of candies in each of the color groups.
5. If you add up the fractions from question #3, does your total equal your answer from question #2? Why or why not?

6. The rule for changing a fraction to a decimal is "Do the division - divide the denominator into the numerator." After converting the fractions from #3 to decimals, arrange the values for the different color groups from smallest to largest. Round to the nearest hundredth, as needed.

7. If you add up all the decimals you just figured, what do you get?

8. Use one of the rules for changing a decimal to a percent to write each of the decimals that you figured out in question #5 as percents. Hint: Multiply by 100 and add a % sign or move the decimal point two places to the right and add a % sign.

8. What do you get if you add up all the percents from question # 7?

9. Based on all of the work you just did, which of the following answers is correct?
100% equals
 - a) 100
 - b) 1
 - c) 1.00
 - d) a and c
 - e) b and c

10. Construct a graph that compares the number (or percent) of different colored M & Ms TM in your sample?

Analyzing the Data

1. Did all the bags of the same candy have the same amount of candy or colors?
2. What was the average number of M & Ms™ in each bag? You will need to collect data from each group in order to answer this question.
3. How would you estimate the number of M & Ms™ found in a one-pound bag, if you were not allowed to count each M & M™ in the bag?

Lesson 4 Measurement: It's Important!

Using Measurement in the Workplace

Danielle is self-employed as an interior decorator. A client is requesting a new set of curtains for her kitchen. Before Danielle quotes a price to her client, she needs to calculate the cost of the fabric that has been selected.

The window dimensions are: 6' wide, 4' long. The finished width of the curtains will be 3 times the window width. The curtains will have two gathered sections with a 3" hem at the bottom and a 1" hem on each side.

The uncut fabric is 54" wide and costs \$15.99 per yard. Fabric is sold by the yard with partials in $\frac{1}{2}$, $\frac{1}{4}$, or $\frac{1}{3}$ yard. Danielle will need to add $\frac{1}{2}$ inch for seam allowances (where the fabric is sewn together) on sides, top and bottom and an additional 6" for a curtain-rod pocket at the top.

Draw a picture to illustrate the problem.

How much fabric is needed?

What is the cost of the fabric needed?

Why is it important for Danielle to have accurate measurements of the window?

Math in the Workplace

Micron Workplace Math. Retrieved from the World Wide Web at:
<http://www.micron.com/k12/math/geometry/carpenter.aspx>

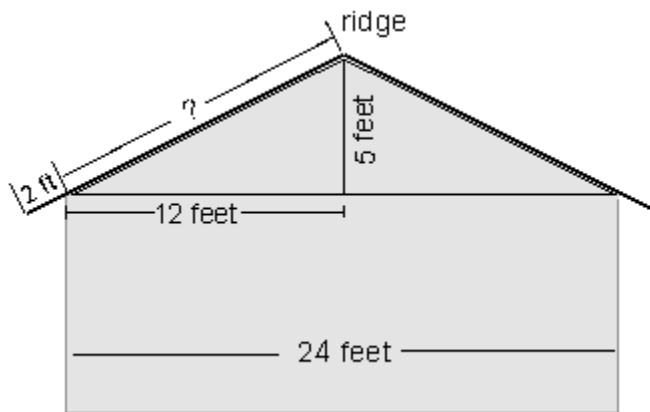
Occupation: Framing Contractor/Carpenter

Problem:

A customer would like a bonus room to be added to an existing home. The new room is to be 26' x 24' with an 8' ceiling and a 2' roof overhang. The ridge of the roof is to be centered over the 24 foot wall and 5 feet above the top of the wall of the bonus room.

Assuming the builder uses standard 4' x 8' plywood sheets, determine the following:

1. How many plywood sheets will be needed to cover the walls of the bonus room (not accounting for doors or windows)?
2. How many plywood sheets will be necessary to cover the roof over the bonus room?



Math Scavenger Hunt

Clip out the number and necessary accompanying information and paste it next to the description.

1. A percentage that is more than one-fifth ($1/5$).
2. A store giving more than one-fourth ($1/4$) off of an item.
3. An ad that is less than one-fourth ($1/4$) the page.
4. A stock that has gained seven-eighths ($7/8$) of a point.
5. A dollar amount greater than one million.
6. A percentage higher than .75.
7. A decimal that does not refer to money.
8. Roman numeral.
9. A graphic with the number 0.
10. An equation using numbers.
11. A coupon that saves the consumer more than one dollar (\$1.00).
12. An example of each of the following graphics:
 - a. line graph
 - b. bar graph
 - c. pie chart/circle graph
 - d. pictograph
 - e. chart or table