1 Historically, different people have defined a year in different ways. For example, an Egyptian year is 365 days long, a Julian year is $365\frac{1}{4}$ days long, and a Gregorian year is 365.2425 days long.

(a) What is the difference, in seconds, between a Gregorian year and a Julian year?

(b) What is the percent decrease, to the nearest thousandth of a percent, from a Julian year to a Gregorian year?

(c) How many fewer days are there in 400 years of the Gregorian calendar than there are in 400 years of the Julian calendar?

2 There are 270 students at Colfax Middle School, where the ratio of boys to girls is 5:4. There are 180 students at Winthrop Middle School, where the ratio of boys to girls is 4:5. The two schools hold a dance and all students from both schools attend. What fraction of the students at the dance are girls?

(A) $\dfrac{7}{18}$

(B) $\dfrac{7}{15}$

(C) $\dfrac{22}{45}$

(D) $\dfrac{1}{2}$

3 A restaurant makes a special seasoning for all its grilled vegetables. Here is how the ingredients are mixed:

$\frac{1}{2}$ of the mixture is salt.

$\frac{1}{4}$ of the mixture is pepper.

$\frac{1}{8}$ of the mixture is garlic powder.

$\frac{1}{8}$ of the mixture is onion powder.

The restaurant mixes a 12-cup batch of the mixture every week. How many cups of each ingredient do they use in the mixture each week? Fill in the blanks to answer the question. Show or explain how you found your answers.

| | cups salt |
| cups pepper |
| cups garlic powder |
| cups onion powder |

4 A store is advertising a sale with 10% off all items in the store. Sales tax is 5%.

A 32-inch television is regularly priced at $295.00. What is the total price of the television, including sales tax, if it was purchased on sale? Fill in the blank to complete the sentence. Round your answer to the nearest cent.

The total cost of the television is $_____.

5 The directions on a bottle of vinegar say, "mix 1 cup of vinegar with 1 gallon of water to make a cleaning solution." The ratio of vinegar to water is 1 to 16.

a. How many **cups** of water should be mixed with 1/4 cup of vinegar to make the cleaning solution?

b. How many **fluid ounces** of vinegar should be mixed with 80 fluid ounces of water to make the cleaning solution?

c. The bottle contains 1 quart of vinegar. What is the **total number of quarts of cleaning solution** that can be made using the entire bottle of vinegar?

d. A spray bottle holds up to 1 cup of the cleaning solution. When the spray bottle is full, what fraction of the cleaning solution is vinegar?

6 The attendance for the last 4 years at a county fair is shown in the table.

County Fair Attendance

Year	Attendance
1	9,278
2	10,365
3	12,128
4	13,304

This year, the first 20% of people attending the fair will receive a raffle ticket. Of the people who receive raffle tickets, $\frac{1}{3}$ will receive a small prize.

Based on the data in the table, determine a reasonable estimate of the number of people who will attend this year's fair. Explain how you found your estimate.

Use your estimate to find the approximate number of people who will receive a small prize at this year's fair.

Show your work or provide an explanation of how you found the approximate number of people who will receive a small prize at this year's fair.

7 The average price per gallon of gasoline in the state of California is given for 4 different dates.

Gasoline Price Data

Date	Average Price per Gallon (dollars)
January 1998	1.291
January 2000	1.354
March 2011	3.874
March 2013	4.069

Part A: A student claims that the percent increase in the average price per gallon for the two-year period from 2011 to 2013 was about the same as the percent increase for the two-year period from 1998 to 2000. Provide work or an explanation to justify whether or not the student's claim is correct.

Part B: In March 2011, a California newspaper predicted that the price of gasoline in two years would be $4.10. The newspaper claimed that the prediction would be within 2% of the actual price of gasoline in March 2013. Given the data in the table, determine the percent error of the prediction Was the newspaper's claim correct or incorrect? Provide work or an explanation to justify your answer.

8 Students are playing a game In the game, students collect and trade building materials. Materials of equal value used for trading are shown in the table.

Materials of Equal Value for Trading

1 stone = 4 logs
1 brick = 10 logs
2 logs = 150 nails

Part A

How many stones are needed to trade for 10 bricks?

Part B

How many nails are needed to trade for 1 brick?

9 A worker at the zoo calculates the amount of fish, in pounds, needed in the weekly diet of an eagle and a bear.

The eagle eats 6 pounds of food each week, and 60% of that weight must be fish.

The bear eats 105 pounds of food each week, and 25% of that weight must be fish.

Part A

What is the total amount of fish, in pounds, that the eagle and bear should eat each week? Round your answer to the nearest hundredth of a pound.

Write your answer below.

Part B

The zoo increases the amount of food that the bear eats each week to 115 pounds. What is the percent increase in the amount of food that the bear eats each week? Round your answer to the nearest tenth of a percent.

Write your answer below.

10 Sara buys a sweater at a department store. The sweater costs $30. The store is having a 25% off sale on everything in the store.

What is the amount of money, in dollars, Sara saves from the sale? Do not consider the sales tax.

Write your answer below.

11 Lenny bought a motorcycle. He paid 12.5% in tax. The tax added $1437.50 to the price of the motorcycle.

What was the price of the motorcycle, not including the tax?

Write your answer below.

12 If 100 dollars in one year gain $3\frac{1}{2}$ dollars interest, what sum will gain $38.50 cents in one year and a quarter?

On Friday, three friends shared how much they read during the week.

- Barbara read the first 100 pages from a 320-page book in the last 4 days.
- Colleen read the first 54 pages from a 260-page book in the last 3 days.
- Nancy read the first 160 pages from a 480-page book in the last 5 days.

Part A

A person's average reading rate can be defined as the number of pages read divided by the number of days. Place the three friends' reading rates in order from greatest to least by clicking on the names and dragging them to the appropriate boxes.

Greatest Rate
(pages per day)   [   ]

                   [   ]

Least Rate
(pages per day)   [   ]

Barbara   Colleen   Nancy

Part B

If the three friends continue to read everyday at their rates, who will finish reading her book first? Second? Third?

Order the friends from the first one who is predicted to finish her book to the third one who is predicted to finish her book. Click on the names and drag them to the appropriate boxes.

First   [   ]

Second   [   ]

Third   [   ]

Barbara   Colleen   Nancy