Math Revised

A Review of the Basics - Level 1

Students Guide

Math Concepts – A Review of the Basics - Level One
Student Guide

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Fractions

1. Proper fractions, improper fractions, and mixed numbers
2. Adding & Subtracting Fractions
3. Multiplying & Dividing Fractions

Vocabulary

- **Equivalent Fractions:** fractions that are different names for the same number. Many ways to write the same fraction.
- **LCD:** least or lowest common denominator.
- **Simplifying a Fraction:** renaming a fraction by multiplying both the numerator and denominator by a common factor.
- **Numerator:** the number or expression on top in a fraction; for $\frac{a}{b}$, it is a.
- **Denominator:** the number or expression on the bottom in a fraction; for $\frac{a}{b}$, it is b.
- **Quotient***:* the answer to a division problem.

Proper Fractions, Improper Fractions, & Mixed Numbers

A fraction, like a decimal, illustrates a part of a whole. A fraction is written as a quotient of two numbers. A fraction is written with a numerator on top and a denominator on the bottom. Before we can add and subtract fractions, we must understand different forms of fractions.

There are three forms of fractions: proper, improper, and mixed number.

Proper Fraction: $\frac{1}{2}$ is a proper fraction; the numerator is less than the denominator. In this case, 1 is the numerator and 2 is the denominator. More examples of proper fractions: $\frac{3}{4}, \frac{4}{7}, and\ \frac{49}{50}$.

Improper Fraction: $\frac{11}{7}$ is an improper fraction; the numerator is bigger than the denominator. In this case, 11 is the numerator and 7 is the denominator. More examples of improper fractions: $\frac{5}{4}, \frac{7}{3}, and\ \frac{9}{5}$.

Notes:

Mixed Number: $1\frac{1}{2}$ is a mixed number, which consists of a whole number and a proper fraction. More mixed numbers: $3\frac{4}{5}, 4\frac{6}{11}, and 8\frac{5}{7}$.

RULE: *Whenever you see an improper fraction, always change it to a mixed number. Follow these steps:*

1. *Divide the denominator into the numerator.*
2. *Write the remainder as a fraction. Put the remainder over the original denominator.*
3. *Reduce as needed.*

Practice 1: Change $\frac{20}{6}$ to a mixed number.

TIP: *do not confuse changing an improper fraction to a mixed number with "simplifying." Simplifying fractions is a totally different procedure.*

Always: *reduce your fraction to the simplest form. Reducing means a fraction with smaller numbers. Reducing a fraction does not change the value of the fraction. A quarter is* $\frac{25}{100}$ *of a dollar. A quarter is also* $\frac{1}{4}$ *of a dollar. The fraction reduces to* $\frac{1}{4}$.

Practice 2: Reduce $\frac{6}{10}$ to the lowest terms.

Adding & Subtracting Fractions

Notes:

"Like Fractions": The operations of adding and subtracting fractions require "like fractions". **Like fractions** are fractions with the same denominator. To add or subtract like fractions:

1. Add or subtract the numerators and put the sum or the difference over the common denominator.
2. Reduce if necessary.

Practice: $\frac{7}{8}+\frac{3}{8}=$

"Unlike Fractions": are fractions with different denominators. Before two fractions with different denominators can be added, each must be converted to an equivalent fraction so that they have a common denominator. Therefore, we must find the lowest common denominator (LCD) for the two fractions. The process of adding two fractions with different denominators has three main **STEPS**:

1. Determine the LCD for the two denominators in the fractions to be added.
2. Convert each fraction to an equivalent fraction with a denominator equal to the least common multiple determined in step 1.
3. Add the two equivalent fractions from step 2.

Notes:

Least Common Multiple (LCM): When working with fractions, we are looking for the LCD (Least Common Denominator). In order to do that, let's first practice finding the LCM of three different whole numbers:

1. 4, 6, and 18

TIP: *often the LCM or LCD is the largest number of the numbers you are working with and it can also often be found by multiplying the largest number by 2.*

2. 3, 5, and 6

3. 15, 18, and 90

Practice, Unlike fractions: 2/3 + 3/4

Notes:

Practice 1, Unlike mixed numbers: $5\frac{2}{3}+3\frac{7}{9}=$

Practice 2, Unlike mixed numbers: $7\frac{2}{3}-3\frac{4}{9}=$

Notes:

Practice 3, Unlike mixed numbers: $8\frac{1}{5}-3\frac{3}{4}=$

TIP:

In subtraction it is sometimes necessary to borrow from the whole number. In this case, "Borrowing" means rewriting a mixed number using an improper fraction. We do this so we can subtract the fraction parts without getting a negative number.

Notes:

Stop and Check

Read each of the following carefully and answer each using the steps just covered.

1. $\frac{4}{9} + \frac{11}{9} =$

2. $\frac{5}{3} - \frac{2}{12} =$

3. $2\ \frac{7}{10} + 4\ \frac{3}{10} =$

4. $1\ \frac{1}{2} - \frac{3}{4} =$

5. $\frac{2}{3} + \frac{1}{12} + \frac{1}{6} =$

Notes:

Multiplying Fractions

When you multiply fractions, you are getting a fraction of a fraction. The answer (product) is therefore smaller than the fractions you multiply. The phrase "a fraction of" means to multiply.

Let's See: $\frac{1}{2}$ of $\frac{3}{4}$ means $\frac{1}{2} \times \frac{3}{4}$.

STEPS: To multiply fractions, follow these steps:

1. Set up the problem to multiply
2. Simplify/cancel if possible.
3. Multiply the numerators together.
4. Multiply the denominators together.
5. Reduce the answer if possible.

TIP:
Simplifying/canceling before doing the operation only works for multiplication since it is based upon the multiplication property of one. It does not work for addition, subtraction, or division.

Practice 1: Find the product of $\frac{5}{6}$ and $\frac{7}{11}$.

Notes:

Practice 2: $\frac{3}{4} of \frac{8}{15}$

Practice 3: $1\frac{1}{3} \times \frac{5}{6} =$

TIP: *When multiplying mixed numbers - change the mixed number to an improper fraction and then use the same steps for multiplying proper fractions.*

Notes:

Practice 4: $3 \times \frac{5}{12} =$

TIP: *Any whole number can be written as a fraction by inserting a 1 in the denominator.*

Dividing Fractions

Remember in whole number division the problem, $8 \div 2 = 4$, has the same answer as the fraction multiplication problem, $8 \times \frac{1}{2} = 4$. In division problems with fractions or mixed numbers, you must invert (flip the numerator and denominator) the divisor, or find the reciprocal.

Vocabulary

- ***Reciprocal*:** two rational numbers that have a product of 1. Informally, the reciprocal of a fraction is the result of flipping the numerator and denominator. That is, turning the fraction upside down or inverting it.

STEPS: to divide with fractions, follow these steps.

1. Write each number in fraction form.
2. Invert the divisor by turning it upside down and change the $\div$ sign to a $\times$ sign.
3. Follow the rules for multiplying fractions.

Notes:

Practice 1: $4 \div \frac{2}{3} =$

Practice 2: $4\frac{1}{2} \div 1\frac{1}{2} =$

Notes:

Stop and Check

Read each of the following carefully and answer each using the steps just covered.

1. $\frac{4}{9} \times \frac{3}{20} =$

2. $2 \times \frac{5}{12} =$

3. $2\frac{2}{5} \times 4\frac{1}{3} =$

4. $\frac{1}{6} \div \frac{3}{10} =$

5. $1\frac{1}{2} \div \frac{3}{4} =$

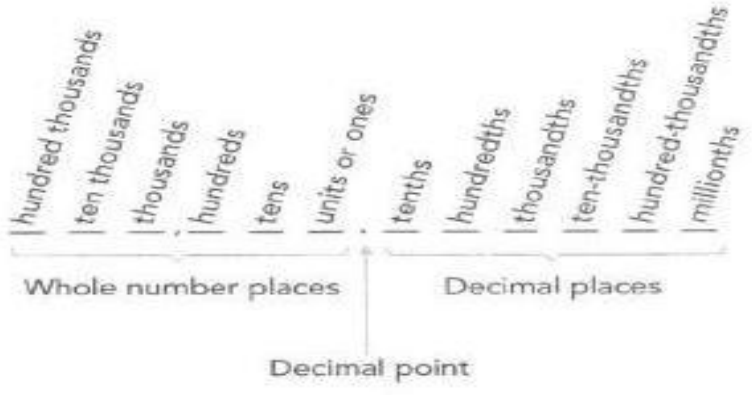
Notes:

Decimals

1. Comparing decimals – which is larger?
2. Adding & Subtracting decimals
3. Multiplying & Dividing decimals
4. Changing decimals to fractions
5. Changing fractions to decimals

Comparing Decimals

Digits to the **left** of the decimal place represent 1's, 10's, 100's, 1000's, and so on AND digits to the **right** of the decimal point represent 1/10's, 1/100's, 1/1000's and so forth.



For instance, consider the whole number 2981. The right-most digit, 1, indicates how many ones are in the number, the 8 indicates how many tens are in the number, the 9 indicates how many hundreds are in the number, and the 2 indicates how many thousands are in the number.

DIGITS TO THE **RIGHT** OF A DECIMAL POINT ~ indicate how many portions of a whole number are present.

Add a decimal point and some additional digits to the right of the decimal point to the whole number 2981. Example: 2981**.427**.

The 1st digit to the right of the decimal point, 4, indicates how many tenths are present, the 2 indicates how many hundredths are present, and the 7 indicates how many thousandths are present. When we say a "tenth" we mean one-tenth of **1**, or $\frac{1}{10}$, and when we say "hundredth" we mean **1** one-hundredth of **1**, or $\frac{1}{100}$, etc.

Notes:

Practice:
Write .37, 0.307, 0.7, and 0.73 in order from largest to smallest.

Stop and Check

List the numbers in order, from largest to smallest.

1. 0.14, 0.1, 0.41, 0.104 =

2. 0.708, 0.78, 0.087, 0.9 =

3. 0.407, 0.70, 0.704, 0.47 =

Notes:

Adding & Subtracting Decimals

The operations of adding and subtracting with decimals are much like adding and subtracting whole numbers.

To add and subtract decimals, line up the numbers vertically with the decimal points one under another. Keep in mind that a whole number is understood to have a decimal point at the right. To be sure decimals are lined up correctly, you can give each number the same number of decimal places by adding zeros on the right until all the numbers have the same number of decimal places.

Practice 1: 2.8 + 47. + 2.31 =

TIP: *you may find it easier to keep track of the places if you add some zeros to the numbers that do not extend as many places to the right of the decimal point. By adding zeros to the right of the last digit in a decimal, you are not changing the value.*

Practice 2: What is the difference between 0.7 and 0.342?

Practice 3: If you buy a candy bar for .75, how much change will you get back from a $5 bill?

Notes:

Stop and Check

Read each of the following carefully and answer each using the steps just covered for adding & subtracting decimals.

1. A shirt costs $9.95, socks cost $2.60, and shoes cost $19.40. How much do all three cost?

2. A burger costs $2.25, a soft drink costs $1.35, and fries cost $1.55. How much is it for just the burger and the soft drink?

3. If you buy a soda that costs $1.00, and chips that cost $1.35, how much change will you get from a $10 bill?

4. What is the difference between 0.5 and .12?

Notes:

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Multiplying & Dividing Decimals

The operations of multiplying and dividing with decimals are much like multiplying and dividing whole numbers, except for the placement of decimal points.

- **Multiplying Decimals:**

To multiply decimals, you do not have to line up the numbers with decimal point under decimal point. Put the number with more digits on the top, and multiply as you would with whole numbers. Count the number of decimal places (digits to the right of the decimal point) in the number you are multiplying. Counting from the right, insert the decimal point so that you have this total number of decimal places in your answer.

TIP: *When multiplying decimals, any zero to the right of a decimal point counts as occupying a place as long as there is at least one non-zero digit somewhere to the right of the zero.*

Let's See: **2.507**

- There are **3** places occupied to the right of the decimal point.
- The **0** in the hundredths place counts as an occupying digit because there is at least one non-zero digit even farther to the right-- in this case, the **7** in the thousandths place.

Let's See: **18.0670**

- Even though there are **4** digits to the right of the decimal point, only **3** places to the right of the decimal point are considered to be occupied.
- The **0** in the tenths place counts as an occupying digit, because it has at least one non-zero digit to its right-- in fact, it has two non-zero digits to its right.
- However, the right-most **0** (in the ten-thousandths place) does **not** have a non-zero digit to its right, so it does not count as an occupying digit. Thus, this decimal has only **3** occupied places to the right of the decimal point.

Notes:

Practice 1: What is the product of 2.48 and 0.4?

Practice 2: What is the product of .100 and 0.25?

Practice 3: Multiply twenty-five dollars and fifty cents by four.

Notes:

Dividing Decimals by Whole Numbers:

To divide a decimal by a whole number, bring up the decimal point in your answer directly above its position in the dividend. Divide as you do for whole numbers.

Let's Review Vocabulary: $4.8 \div 3 = 1.6$

- 4.8 is the dividend
- 3 is the divisor that divides into the dividend
- The answer 1.6 is the quotient.

Rounding:

Rounding a number is always done to a specified place value. If the digit immediately to the right of the specified place value is less than **5**, the digit that is **in** the place value that you are rounding is not changed.

Let's See: **25.89123**

- Rounding to 3 decimal places. This would be the 1 to the right of the decimal point – in thousandths place.
- The digit to the right of the 1 (2), is less than 5 so we keep the number as is
- Now eliminate the rest of the digits to the right of the 1
- Our newly rounded number should be **25.891**

If the digit to the right of the place value is equal to or greater than **5**, then the digit that you are rounding is increased by **1**.

Let's See: **123.98512**

- Rounding to 2 decimal places. This would be the 8 to the right of the decimal point – in hundredths place.
- The digit to the right of 8 is 5 and the rule is 5 or more and we round up. So we round 8 up 1 to 9.
- Our newly rounded number should be **123.99**

Let's See Rounding of Whole Numbers: **526.789**

- Rounding to a whole number. This would be the 6 to the left of the decimal point – in the ones place.
- The digit to the right of 6 is 7, so we round up 1 to 7.
- Our newly rounded number should be **527**

TIP: *If the number is Less than 5= keep the same. If the number is 5 or more= round up 1*

Notes:

Practice 1: Find $4.5 \div 3$

Practice 2: What is the quotient of 0.168 divided by 2?

TIP: *You may need to use zeros to hold decimal places.*

Practice 3: Solve $2.7 \div 5$

TIP:
Sometimes adding a zero makes a division problem come out evenly.

Notes:

Dividing Decimals by Decimals

To divide a decimal by a decimal, make the divisor a whole number. Move the decimal point in the divisor to the right as far as it will go. Also move the point in the dividend the same number of places that you moved the point in the divisor. Then divide.

Practice 1: What is 2.4 divided by 0.3?

TIP: *2.5 ÷ 0.5 is the same as 25 ÷ 5.*

Notes:

Stop and Check

Read each of the following carefully and answer each using the steps just covered for dividing decimals.

1. $6\overline{)377.60}$

2. $250.00 ÷ .50 =

3. 21.79 ÷ 100 =

4. If you make $11.00 an hour. How many hours will you have to work to earn a total of $121.00 =

5. If you earned $18,666.00 last year, what was your monthly salary?

Notes:

Changing a decimal to a fraction

Converting a decimal to a fraction is very simple. Let's See:

Practice 1: Convert .125 to a fraction.

FYI: *the 1 represents 1 tenths; the 2 represents 2 hundredths; the 5 represents 5 thousandths.*

SHORTCUT! *– instead of writing it out – just find the LCD – as we said earlier it is 1000. So we just remove the decimal and place it over the LCD and we get 125/1000. Now just reduce.*

Practice 2: Convert 0.21 to a fraction.

Changing a fraction to a decimal

Now let's try doing the opposite – converting a fraction into a decimal. Any fraction can be written as a decimal, although the decimals for some fractions will have an infinite number of digits.

For instance, you are probably aware that $\frac{1}{2}$ is equal to **0.5** , and $\frac{3}{4}$ is equal to **0.75**. Such conversions of wording come up regularly in real life-- if you see the price of something listed as **$0.75** , you may say to yourself "it costs three-quarters of a dollar," where three-quarters is just another way of saying three-fourths.

TIP: *Keep in mind that a fraction can be thought of as representing a division problem.*

Notes:

In a general fraction a/b, you can think of this as representing **a** divided by **b** . Converting a fraction to a decimal is that simple: just divide the numerator by the denominator.

Practice: 2/10 (two tenths) = two divided by ten.

TIP: *adding zeros to a decimal number after the decimal point doesn't change the value of the number. So when you run out of other digits to bring down, you start bringing down zeros instead.*

Stop and Check

Convert the following decimals to fractions and fractions to decimals. Reduce as needed.

1. .8 =

2. 67.89 =

3. **.**21 =

4. 233/10 =

5. 197/100 =

Notes:

Percents

1. Changing a percent to a decimal
2. Changing a decimal to a percent
3. Changing a percent to a fraction
4. Changing a fraction to a percent
5. Finding a percent of a number
6. Finding what percent one number is of another
7. Finding a number when a percent of it is given

Understanding Percent and Conversion

A percent, like a decimal, illustrates a part of a whole. With percents, one whole is always divided into 100 parts. A percent is represented by the % sign. Percent means "out of 100" or "per 100." A percent can be presented as a two-place decimal or a fraction with a denominator of 100.

Changing a Percent to a Decimal

In some problems, you may need to change a percent to a decimal. When you work with percents, you first change the percent to an equivalent decimal or fraction. A percent is like hundredths, a two place decimal.

STEPS: To change a percent to a decimal, follow these steps:

1. Drop the percent sign (%)
2. Move the decimal point two places to the left.

Example:

Percent	Decimal
45% = 45	.45
8% = 08	.08
37 ½ % = 37½	.375
250% = 250	2.5

Remember: *To convert a percent to a decimal you divide it by 100 – the shortcut is moving the decimal point 2 places to the left.*

Notes:

Changing a Decimal to a Percent

Now let's do the opposite. To change a decimal to a percent, follow these steps:

1. Move the decimal point two places to the right.
2. Write the percent sign after the last digit.

Example:

Decimal	Percent
0.25 = 0 25	25%
0.6 = 0 60	60%
0.04 ¼ = 0 04 ¼	4.25%
3.5 = 3 50	350%
36 = 36 00	3600%

Remember: *To convert a decimal to a percent you multiply it by 100 – the shortcut is just moving the decimal point 2 places to the right.*

Changing a Percent to a Fraction

A percent is just a fraction with a denominator of 100. For example, 66% is the same as 66/100. However, for more complicated percentages we should use the long hand approach, which is to remove the percent symbol and multiply the percentage value by 1/100. If the resulting fraction is not in simplest form it can be reduced to simplest form. $n\% = n \times \frac{1}{100} = \frac{n}{100}$

Practice 1: Change 133% to a fraction.

Notes:

Changing a Fraction to a Percent

To change a fraction to a percent, divide the denominator into the numerator. Then move the decimal point two places to the right. OR Multiply the fraction by **100%**.

Practice 1: Change $\frac{1}{9}$ to a percent.

Practice 2: Change 5/9 to a percent.

Notes:

Vocabulary

- ***Base*:** the numerical amount that has been defined as equal to **100%** of the quantity being considered.

Finding a Percent of a Number

When you worked with fractions, you learned that finding a fraction of a number means to multiply. Finding the percent of a number also means to multiply. With this type of problem, the percent and base are known and it is the **amount** that you are solving for. To calculate the amount, use the original base equation:

% x Base = Amount

STEPS: To find a percent of a number, follow these steps:

1. Change the percent to a decimal or a fraction.
2. Then, multiply.

TIP: *OF means to multiply. The base is the whole number we are working with originally.*

Practice 1: Find 35% of 50.

Finding What Percent One Number Is of Another

With this type of problem, the base and amount are known and it is the **percent** that you are solving for. To calculate the percent, we just need to rearrange the basic percent equation. Use the original base equation, just rearrange it to: **%** = Amount / Base

STEPS:

1. Determine the amount and the base and set up the equation. % = Amount / Base
2. Do the division.
3. Put the answer in percentage form.

Practice 1: If you spent $27 of $45 what percent is that?

Notes:

Finding a Number When a Percent of It Is Given

With this type of problem, the percent and amount are known and it is the **base** that you are solving for. To calculate the base, we just need to rearrange the basic percent equation. Use the original base equation, just rearrange it to:

$$\textbf{Base} = \frac{\text{Amount}}{\%}$$

STEPS: To find a number when a percent of it is given, follow these steps:

1. Determine the amount and the percentage and set up the equation.
   $$\textbf{Base} = \frac{\text{Amount}}{\%}$$

2. Do the division.

Practice 1: 20% of what number is 9.

Stop and Check

Read each of the following carefully and answer each using the steps just covered for working with percents.

1. Convert each of the following percents to decimals:
   1%, 200%, 12.9%

Continued on next page:

Notes:

Stop and Check continued:

2. Convert each of the following percents to fractions:
   10%, 15%, 125%

3. Convert each of the following decimals to percents:
   .07, .004, 2.58

4. Convert each of the following fractions to percents:
   1/25, 89/100, 1 3/100

5. An $88 jacket is 25% off, what is the final cost of the jacket?

6. If 35 miles is 25% of the distance between two cities, what is the distance?

TIPS for Reading and Interpreting Graphs

Average, Mean

The average or mean of a set of numbers is the SUM of the set of numbers DIVIDED by the total amount of numbers in the set.
Example: Find the average of 22, 30, and 23.

Step 1: Add the set of numbers 22 + 30 + 23 = 75
Step 2: Divide by the total amount of numbers in the set. (22, 30, and 23: there are a total amount of **3** numbers in the set) So, we divide 75 by 3 75/3 = 25

Median

The median is the number in the middle of a set of numbers. To find the median of a set of numbers, first arrange the numbers in order from smallest to largest, and then find the number in the middle of the set. If there are two numbers in the middle, the median is the average of the two.
Example 1: Find the median in the following set of numbers. 10, 85, 3, 77, 27

Step 1: Arrange the numbers in order from smallest to largest… 3, 10, 27, 77, 85
Step 2: Find the number in the middle of the set… 3, 10, **27**, 77, 85
The number **27** is in the middle of the set, thus is the median number.

Example 2: Find the median in the following set of numbers. 25, 8, 48, 38, 65, 99

Step 1: Arrange the numbers in order from smallest to largest… 8, 25, 38, 48, 65, 99
Step 2: Find the number in the middle of the set… 8, 25, 38, 48, 65, 99
In this example we have 2 numbers in the middle… 8, 25, **38, 48**, 65, 99
Step 3: Find the average of the two middle numbers… 38 + 48 = 86 / 2 = **43**
The number **43** is the median number.

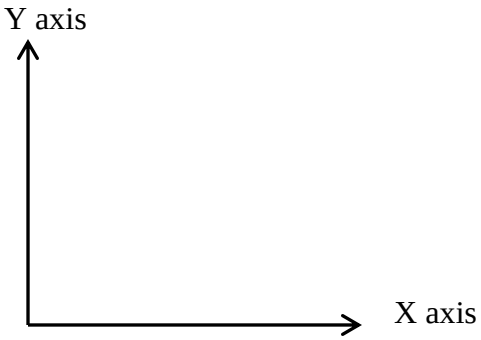
Mode

The mode is the number that appears the most number of times in a set. To find the mode of a set of numbers, list the numbers in order from the smallest to the largest and figure out which number appears the most number of times.
Example: Find the mode in the following set of numbers. 10, 2, 2, 18, 6, 6, 6, 12, 12, 14, 25

Step 1: Arrange the numbers in order from smallest to largest…2, 2, 6, 6, 6, 10, 12, 12, 14, 18, 25
Step 2: Figure out which number appears the most number of times…
2, 2, **6, 6, 6**, 10, 12, 12, 14, 18, 25
The number **6** is the mode.

Graphs

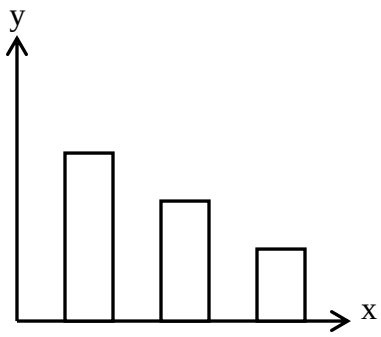
A graph can be used to give a visual representation of the relationship of data that has been collected. It is made up of a vertical and a horizontal axis. The vertical axis is called the (y) axis, and the horizontal axis is called the (x) axis.

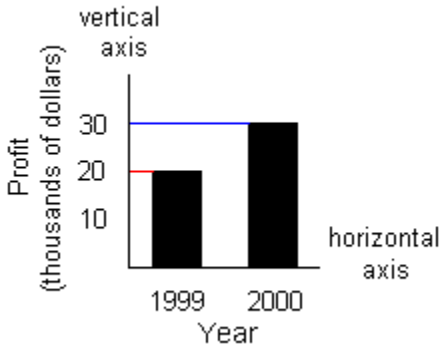


Bar Graphs

A bar graph can be used to give a visual representation of the relationship of data that has been collected. It is made up of a (y) and (x) axis and bars that can run vertically or horizontally.

Vertical Graph



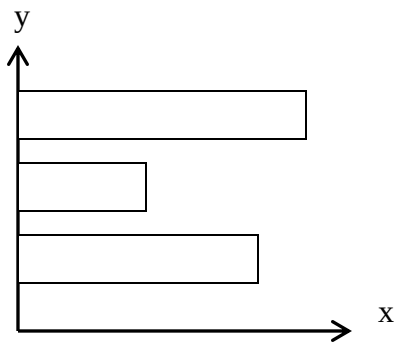


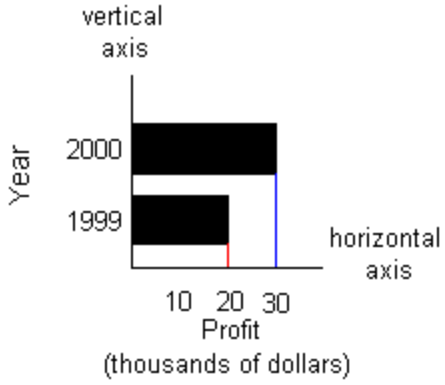
The horizontal axis represents years and the vertical axis represents profit in thousands of dollars.

The first bar on the left associates with the year 1999 AND the profit of $20,000. The line shows how the top of the bar lines up with 20 on the vertical axis.

The second bar from the left associates with the year 2000 and the profit of $30,000. The line shows how the top of the bar lines up with 30 on the vertical axis.

Horizontal Graph





The vertical axis represents years and the horizontal axis represents profit in thousands of dollars. The first bar on the bottom associates with the year 1999 AND the profit of $20,000. The line shows how the right end of the bar lines up with 20 on the horizontal axis.

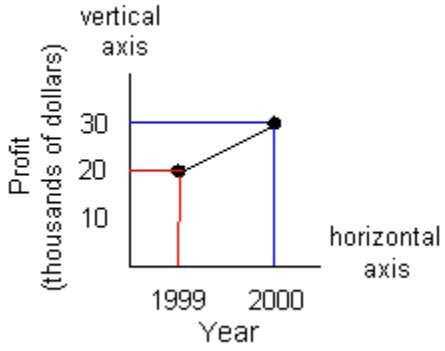
The second bar from the bottom associates with the year 2000 and the profit of $30,000. The line shows how the right end of the bar lines up with 30 on the horizontal axis.

Line Graphs

A line graph is another way to give a visual representation of the relationship of data that has been collected. It is made up of a vertical (y) and horizontal (x) axis and a series of points that are connected by a line. Each point on the line matches up with a corresponding (y) axis and horizontal (x) axis value on the graph.

In some cases, you are giving a value from the horizontal (x) axis and you need to find its corresponding value from the vertical (y) axis. You find the point on the line that matches the given value from the (x) axis and then match it up with its corresponding (y) axis value to find the value you are looking for. You would do the same type of process if you were given a (y) axis value and needed to find a (x) axis value.

Line Graph:



The horizontal axis represents years and the vertical axis represents profit in thousands of dollars. The first point on the left associates with the year 1999 AND the profit of $20,000. The line shows how it lines up with 20 on the vertical axis and 1999 on the horizontal axis.

The second point from the left associates with the year 2000 and the profit of $30,000. The line shows how it lines up with 30 on the vertical axis and 2000 on the horizontal axis.

PRACTICE ITEMS

Instructions: Answer each of the following questions without the help of a calculator.

1. Subtract $67.09 from $96.
   A) $28.91
   B) $-28.91
   C) $66.13
   D) $-66.13

2. Add 223.5, .01516, and 52.
   A) 239.18
   B) 275.51
   C) 275.52
   D) 290.66

3. A shirt costs $19.95, socks cost $5.50, and shoes cost $24.99. How much change will you get from a $100 bill?
   A) $49.56
   B) $59.66
   C) $150.44
   D) $159.66

4. What is the product of 5.98, 101.9 and 0.7?
   A) 107.95
   B) 108.58
   C) 426.53
   D) 426.55

5. Multiply thirty-six dollars and twelve cents by nine.
   A) $38.88
   B) $324.08
   C) $325.08
   D) $432.00

6. Find 14.7 ÷ 4
   A) 0.27
   B) 0.28
   C) 3.67
   D) 3.68

7. What is the quotient of 0.789 divided by 6? *Rounding too hard w/o calc?*
   A) .131
   B) .132
   C) 7.60
   D) 7.61

8. What is 1.4 divided by 0.7?
   A) .05
   B) .2
   C) .5
   D) 2

9. If you paid $30.33 for 11 gallons of gas, what was the cost per gallon?
   A) $0.36
   B) $2.76
   C) $333. 33
   D) $333. 63

10. 12.97 ÷ 100 =
   A) .1297
   B) 1.297
   C) 129.7
   D) 7.71

11. If you make $9.00 an hour, approximately , how many hours will you have to work to earn a total of $231.00 =
   A) 25
   B) 27
   C) 28
   D) 29

12. $28,128.00 ÷ 12 =
   A) $23.44
   B) $234.40
   C) $2340.00
   D) $2,344.00

13. Convert .325 to a fraction.
   A) 325/10
   B) 325/100
   C) 325/1000
   D) 325/10,000

14. Convert 7/10 to a decimal.
   A) .0007
   B) .007
   C) .07
   D) .7

15. Convert 1852% to a fraction.
   A) 18 52/10
   B) 18 52/100
   C) 1852/100
   D) 1852/1000

16. Change 8/9 to a percent.
   A) 88 8/9%
   B) 89/10%
   C) 800/9%
   D) 889/100%

17. If a $55.00 item is on sale for 33% off, how much will it cost?
    A) $17.15
    B) $18.15
    C) $36.85
    D) $37.85

18. If your work is 30 miles from your home and you have traveled 80% of the distance, how far have you traveled?
    A) 6 miles
    B) 17.6 miles
    C) 24 miles
    D) 240 miles

19. Which one of the following is an improper fraction?
    A) 1 2/3
    B) 5/10
    C) 1/3
    D) 9/7

20. 3/4 **-** 1/3 **=**
    A) 1/2
    B) 1/6
    C) 5/12
    D) 1 1/12

21. 9 1/4 + 5 2/3 =
    A) 15 1/7
    B) 15 1/12
    C) 14 3/7
    D) 14 11/12

22. 1/3 + 3/4 + 5/6 =
    A) 1 11/12
    B) 9/13
    C) 23/12
    D) 46/24

23. Find the product of 5/7and 9/11.
    A) 1 44/77
    B) 1 71/77
    C) 45/77
    D) 118/77

24. If there were 20 students in a class and 4 of them came late, what part of the class came late?
    A) 1/4
    B) 1/5
    C) 1/6
    D) 1/8

25. 9 1/3 X 3/7 =
    A) 1/4
    B) 4
    C) 9 1/7
    D) 9 4/21

26. What is two-thirds of 50?
    A) 20
    B) 30
    C) 33 1/3
    D) 75

27. Jennifer runs 1 lap every 2 ½ minutes. How many laps can she run in 11 minutes?
    A) 4 2/5
    B) 5 2/5
    C) 22 1/2
    D) 27 ½

28. 2 3/4 ÷ 5 1/3 =
    A) 3/11
    B) 3/44
    C) 7 1/3
    D) 14 2/3

Answer Key:

1. A
2. C
3. A
4. D
5. C
6. D
7. B
8. D
9. B
10. A
11. A
12. D
13. C
14. D
15. B
16. A
17. C
18. C
19. D
20. C
21. D
22. A
23. C
24. B
25. B
26. C
27. A
28. B

Resources

Books

Prealgebra 3rd Edition
By James Van Dyke, James Rogers, Hollis Adams
1998, Saunders College Publishing, Harcourt Brace College Publishers

Essential Math Skills: A Mathematics Competency Workbook
Leo Gafney & John C. Beers
2000, Phoenix Learning Resources, Inc.

Websites

http://mathforum.Org/dr.math

http://mathforum.org/library/

www.coolmath.com

www.visualfractions.com

www.geocities.com/EnchantedForest/Tower/1217/math1.htm

www.surfnetkids.com/fractions.htm

http://www.bmcc.org/nish/MathTutorials/index.html

www.math.com

www.aplusmath.com