A STUDY GUIDES A

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Place Value

1	2	3	4	5	6	7	.	8	9	1
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths

- The **place value** of a number is written in **word form**:
  *--For example, the place value of the **5** in the number above is **hundreds**.*
- The **value** of a number is written in **standard form**:
  *--For example, the value if the **5** in the number above is **500.***

There are three ways to write a number.

*For example, **45.691** can be written in:*

1. **Standard form** *(with numbers)*:

   45.691

2. **Word form** *(with words)*:

   Forty-five** and **six-hundred ninety-one thousandths

3. **Expanded form** *(adding the value of all of the digits)*:

   40 + 5 + 0.6 + 0.09 + 0.001

Examples of SOL-formatted questions:

1) What is the value of the underlined digit in 7.1<u>5</u>8?

A) Five thousandths

B) Five hundredths

C) Five tenths

D) Five hundreds

2) What is the digit in the tenths place in the number 12.348?

E) 1

F) 2

G) 3

H) 4

3) Which number has an 8 in the thousandths place?

A) 3,821.790

B) 8,319.216

C) 28,431.402

D) 37,281.378

4) **400 + 30 + 2 + 0.7 + 0.05 + 0.008**

Look at the number above. Which answer shows this same number written in *standard* form?

E) 432.758

F) 432,758

G) 400,327.508

H) 400,302,070,050,008

5) Which answer shows 36.708 written in *expanded* form?

A) 36 + 708

B) 30 + 6 + 70 + 8

C) 300 + 60 + 7 + 0.8

D) 30 + 6 + 0.7 + 0.008

6) Which number below is the same as *"Four-hundred twenty-five and seven-thousandths"?*

E) 425.070

F) 425.7000

G) 425.07

H) 425.007

Naming Decimal Numbers

You must be able to recognize and read whole and decimal numbers written in ***standard form***, *word form*, *expanded form*, and when ***represented by pictures***.

Standard Form

To read a decimal number written in standard form, you:

1) Read the whole number part, if there is one.
2) Read the decimal point as "*and*".
3) Read the number to the right of the decimal as you would a whole number.
4) Read the place value of the last digit.

Example 1: **12.231**
You would say: *Twelve* and *two-hundred thirty-one thousandths*

Example 2: **0.25**
You would say: *Twenty-five hundredths*

Example 3: **.009**
You would say: *Nine thousandths*

Example 4: **41.30**
You would say: *Forty-one and thirty hundredths*

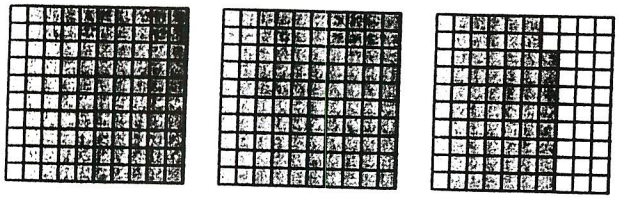
Example 5: **0.800**
You would say: *Eight-hundred thousandths*

Numbers represented by pictures

To read a decimal number represented with pictures, you:

1) Write the whole number shown in the picture (if there is one).
2) Write the decimal point to the right of the whole number.
3) Write the fractional part shown in the model to the right of the decimal point.

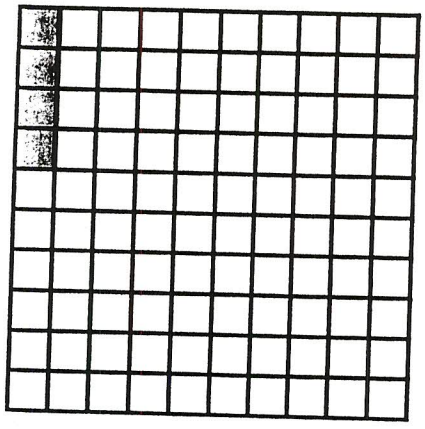
Example 1:



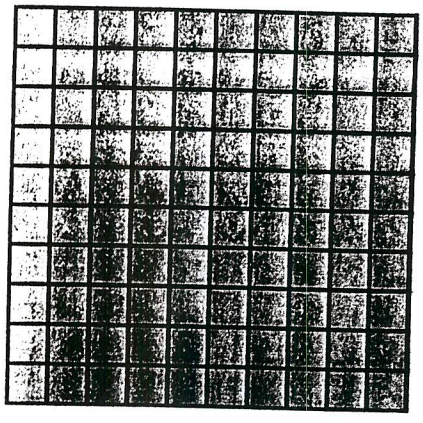
What number is represented by the picture above?

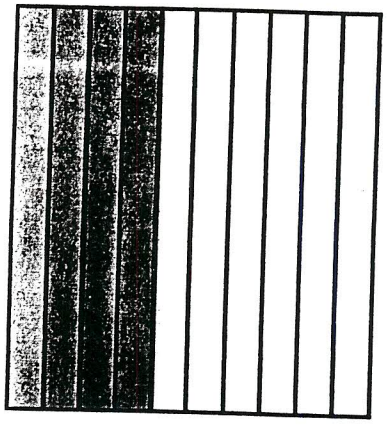
_____

Example 2:



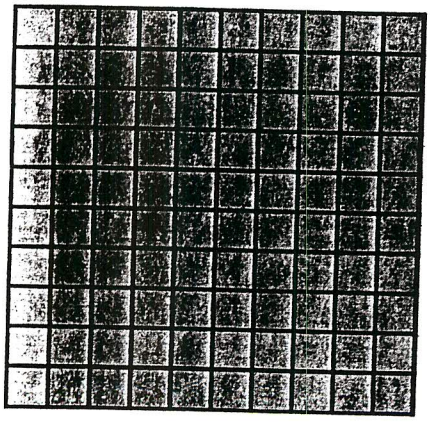
_____

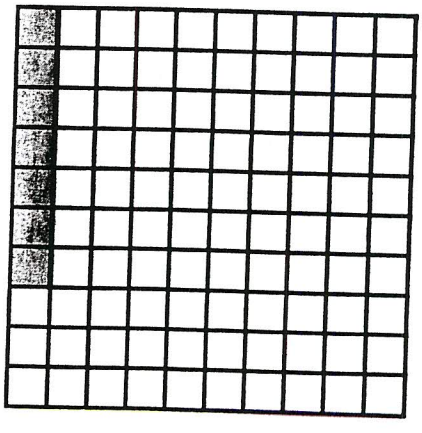




Example 3:

_____





Example 4:

_____

Rounding Decimals

Objective: The student will round decimal numbers to the nearest tenth or hundredth.

How to round decimals:

- Find and **underline** the rounding place *(tenths, hundredths, etc.)*
- **Circle** the digit that is one place to the right of the rounding place
- If the circled digit is **5 or greater**, you will round the underlined digit **up**
- If the circled digit is **4 or less**, the underlined digit **remains the same**

Example: Round 210.278 to the nearest hundredth.

1. Underline the digit in the ***hundredths*** place (7)
2. Circle the number to the right (8)
3. The circled 8 is greater than 5, so you round up
4. The underlined 7 becomes 8 when rounded up
5. ***This 8 will be the last digit in your answer***

2 1 0. 2 7 8

ANSWER----------→ _____

Practice:

Round to the nearest tenth.

2. 9 1 _____ .7 8 4 _____ 4 3 5. 1 5 _____

Round to the nearest hundredth.

26. 9 1 4_____ .2 1 7 _____ 2 5. 0 7 5 _____

Round to the nearest whole number.

2. 9 1 _____ .7 8 4 _____ 8 3 5. 7 5 _____

Examples of SOL-formatted questions:

Example 1:

Round 2.097 to the underlined place.

A) 2.0

B) 2.09

C) 2.10

D) 2.11

Example 2:

What is 3.141 rounded to the nearest tenth?

A) 3

B) 3.1

C) 3.14

D) 3.142

Example 3:

Flower	Weight
Rose	2.65
Lily	2.34
Daffodil	2.59
Violet	2.54

Which flower has a mass of 2.6 when rounded to the nearest tenth?

A) rose

B) lily

C) daffodil

D) violet

Example 4:

Which number below does ***not*** round to the same number as 3.718 when the numbers are rounded to the nearest hundredth?

F) 3.724

G) 3.720

H) 3.718

J) 3.728

Example 5:

Which answer shows this number rounded to the hundredths place?

195.556

F) 195.500

G) 195.55

H) 195.56

J) 200.56

Example 6:

Ming is trying for an average grade of 85 in geography. Which average is closest to 85?

A) 84.43

B) 84.94

C) 85.63

D) 85.78

Comparing Decimal Numbers

The student will identify the symbols for greater than (>), less than (<), and equal to (=), and compare the value of two decimal numbers using these symbols.

Symbols:

- $>$ is read as **"is greater than"**
- $<$ is read as **"is less than"**
- $=$ is read as **"is equal to"**

To compare two or more decimal numbers:

- **Line up the decimal points of all numbers – VERY IMPORTANT!**
- Beginning at the left, compare the digits in each place value spot with those above and/or below – don't forget the whole number part!
- If all the digits in one column are the same, move over one place value spot to the right and compare again
- **Caution: Looking at the length of a number does not work with decimals!!!**
  (see example 2)

Example 1:

6.137 _____ 6.141

Example 2:

235.4 _____ 235.258

EXAMPLE 3:

Put the following numbers in order from least to greatest.

3.583 3.554 3.559 3.516

ANSWER: _____ (Least), _____, _____, _____ (Greatest)

EXAMPLE 4:

Put the following numbers in order from least to greatest.

2.001 3.174 2.4 3.173

ANSWER: _____ (Least), _____, _____, _____ (Greatest)

Remember: Always line up the decimal points first.

Examples of SOL-formatted questions:

1) Which number is the *greatest*?

A) 1.110
B) 1.100
C) 1.101
D) 1.111

2) Which statement is <u>not</u> true about the decimal 2.875?

A) $2.9 < 2.875$
B) $2.875 > 2.8$
C) $2.875 = 2.8750$
D) $2.80 < 2.875$

3) Which sign belongs in the box?

$5.6 \square 5.06$

A) >
B) <
C) =
D) –

4) Which answer shows the batting averages in order from *least to greatest*?

A) 0.325; 0.352; 0.299; 0.350
B) 0.352; 0.350; 0.325; 0.299
C) 0.299; 0.325; 0.350; 0.352
D) 0.352; 0.325; 0.350; 0.299

5) Which number goes in the $\square$ to make the statement true?

$\square > 7.009$

A) 7.009
B) 7.008
C) 7.007
D) 7.09

6)

Average Rainfall

Month	Average Rainfall
June	3.52
July	3.5
August	3.525
September	3.2

Which of the following shows the months in order from the least amount of rainfall to the greatest?

A. September, July, June, August
B. September, July, August, June
C. September, June, August, July
D. September, June, July, August

Fraction Decimal Equivalents

The student will represent fractions (halves, fourths, fifths, eighths, & tenths) in their equivalent decimal forms and vice versa.

These fraction/decimal equivalents must be memorized !!!

You will need to use these equivalents all year long, so learn them now!!!
(Just trust me on this, *please*????)

$\frac{1}{10} = .1$

$\frac{1}{4} = .25$

$\frac{1}{2} = .50$

$\frac{3}{4} = .75$

$\frac{1}{5} = .20$

$\frac{2}{5} = .40$

$\frac{3}{5} = .60$

$\frac{4}{5} = .80$

$\frac{1}{8} = .125$

$\frac{1}{3} = .333$

$\frac{2}{3} = .666$

How To Change Fractions Into Decimals

The student will represent fractions in their equivalent decimal forms.

1) Memorize the equivalents given to you on Study Guide A5.
These are the most commonly used and you should recognize them instantly.

Easiest

$\frac{1}{10} = .1$ $\frac{1}{4} = .25$ $\frac{1}{2} = .50$ $\frac{3}{4} = .75$ $\frac{1}{8} = .125$ $\frac{1}{3} = .333$

$\frac{1}{5} = .20$ $\frac{2}{5} = .40$ $\frac{3}{5} = .60$ $\frac{4}{5} = .80$ $\frac{2}{3} = .666$

2) Check to see if the denominator ends in 10, 100, or 1,000.
If so, you simply read the decimal aloud and write it in decimal form.

Easier

Example: $\frac{9}{10}$ is pronounced ***nine-tenths***.

So, ***nine-tenths*** is written in decimal form as _____.

Example: $\frac{24}{100}$ is pronounced ***twenty-four hundredths***.

So, ***twenty-four hundredths*** is written in decimal form as _____.

Example: $\frac{47}{1000}$ is pronounced ***forty-seven thousandths***.

So, ***forty-seven thousandths*** is written in decimal form as _____.

3) Divide the numerator by the denominator.
(This works because a fraction is a way of showing division.)

Not fun, but not hard either!

Example: $\frac{3}{8}$ → numerator
8 → denominator ⇒ ***(Think "3 divided by 8".)***

Step 1: *Set up your problem by making the numerator (3) your **dividend** by **adding a decimal and three zeros.***

*Make the denominator (8) your **divisor**.*

$$8\overline{)3.000}$$

Step 2: ***Solve the division problem you have created.***

1) Bring the decimal straight up.

$$8\overline{)3.000}$$

2) Divide as you normally would, adding zeros if necessary.

So $\frac{3}{8}$ is equal to 0.375

(Note: You do not have a remainder when dividing decimals.)

Examples of SOL-formatted questions:

1) What decimal amount is equal to $\frac{1}{8}$?

A. 0.143
B. 0.125
C. 0.111
D. 0.025

2) What is the decimal for $3\frac{13}{100}$?

A. 313
B. 3.13
C. 0.313
D. 0.3

3) Darnell and Mario went on a $10\frac{1}{2}$ mile bike ride. Which decimal has a value equal to $10\frac{1}{2}$?

A. 10.02
B. 10.05
C. 10.20
D. 10.50

4) In the community choir, $\frac{3}{5}$ of the members are girls, and $\frac{2}{5}$ of the members are boys.

Which decimal represents the number of girls in the choir?

A) 0.20
B) 0.40
C) 0.60
D) 0.80

5) What is 6.33 expressed as a mixed number?

A. 633
B. $6\frac{33}{100}$
C. $6\frac{3}{10}$
D. $6\frac{3}{100}$

6) What decimal amount is equal to $\frac{5}{8}$?

A. 5.8
B. 1.6
C. 0.58
D. 0.625

Equivalent Fractions and Decimals – Part 2

There are many other ways you can be asked to compare or find equivalent fractions and decimals. Here are several examples:

• Finding an equivalent fraction for a fraction

THE RULE: Whatever you do to one part of the fraction, you *must* do to the other.
*(So, if you multiply the denominator, you **must** multiply the numerator, and if you divide the numerator, you **must** divide the denominator)*

EXAMPLE: Find an equivalent fraction for each of the fractions shown below.

Now do the same thing to the numerator.

$$\frac{1}{2} : \frac{\quad}{6}$$

How can you get from 2 to 6?
(You can only choose from × or ÷)

How can you get from 6 to 2? (× or ÷)

$$\frac{6}{9} \quad \frac{2}{\quad} =$$

Now do the same thing to the denominator.

• Finding an equivalent fraction for a decimal

There are two ways, and both are easy.

1. Use what you have ***memorized.*** *(Please tell me you have these memorized!)*

0.25 = ____ **0.125 = ____** **0.4 = ____**

2. Read the decimal aloud and write what you ***hear.***

0.038 = ____
(38 thousandths)

____ **1.6 =**
*(1 **and** 6 tenths)*

____ **5.82 =** ____
*(5 **and** 82 hundredths)*

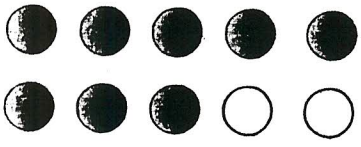
- **Finding equivalents for pictures**

These kinds of problems give you a picture, and ask you to find an equivalent picture, decimal, or fraction. ***There are two very important things to remember:***

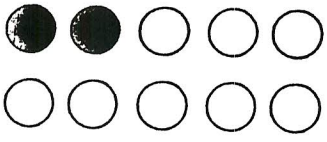
1. Always **simplify** any fractions
2. Always turn all fractions into **decimals**.

EXAMPLE 1:

A fraction of the group of circles is shaded.



Which of the following groups is shaded to show a fraction with the same value?

A) 

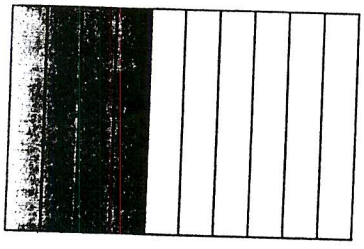
B) 

C) 

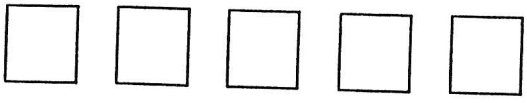
D) 

EXAMPLE 2:

The figure below is shaded to represent a decimal.



How many of the boxes below must be shaded to represent a fraction with the same value as the decimal represented above?



A) 1

B) 2

C) 3

D) 4

Examples of SOL-formatted questions:

Example 1:

How is 0.03 expressed as a fraction?

A. $\frac{30}{100}$

B. $\frac{3}{100}$

C. $\frac{3}{10}$

D. $\frac{30}{1}$

Example 2:

Which fraction is equivalent to $\frac{8}{12}$?

A. $\frac{3}{4}$

B. $\frac{2}{6}$

C. $\frac{2}{3}$

D. $\frac{16}{20}$

Example 3:

Find the missing number.

$$\frac{9}{12}=\frac{3}{x}$$

A. $x=36$

B. $x=4$

C. $x=3$

D. $x=1$

Example 4:

What is the decimal for $3\frac{13}{100}$?

A. 313

B. 3.13

C. 0.313

D. 300.13

Example 5:

What is the fraction for 0.7?

A. $\frac{7}{100}$

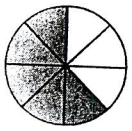
B. $\frac{7}{1}$

C. $\frac{7}{10}$

D. $\frac{10}{7}$

Example 6:

Which fraction is equivalent to the shaded area in the figure?



A. $\frac{10}{16}$

B. $\frac{8}{16}$

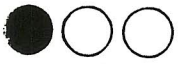
C. $\frac{3}{8}$

D. $\frac{3}{16}$

More Examples:

Example 7:

A fraction of the group of circles is shaded.



Which of the following groups is shaded to show a fraction with the same value?

A) 

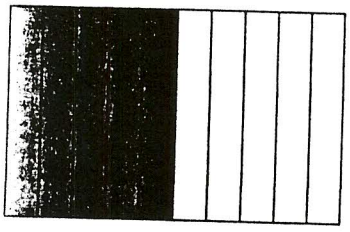
B) 

C) 

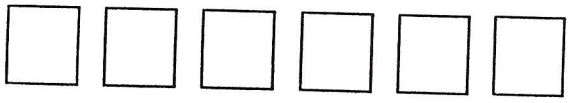
D) 

Example 8:

The figure below is shaded to represent a decimal.



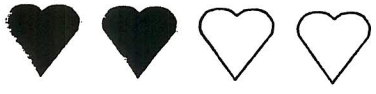
How many of the boxes below must be shaded to represent a fraction with the same value as the decimal represented above?



_____ boxes

Example 9:

A fraction of these hearts are shaded.



Which of the following groups has an equivalent fraction of shaded hearts?

A) 

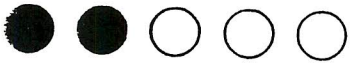
B) 

C) 

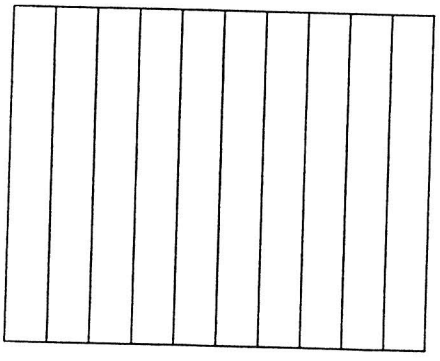
D) 

Example 10:

A fraction of the circles below are shaded.



Shade in the figure below to represent a decimal with the same value.



Ordering Decimals, Fractions, & Mixed Numbers

The student will order from least to greatest a given set of no more than 5 numbers written as decimals, fractions, and mixed numbers with denominators of 12 or less.

VERY IMPORTANT:
This is not as hard as it looks.
Just follow the steps **every time**, and you will do fine.

HOW TO SOLVE

- **Step 1**: **Change** all the fractions and mixed numbers into decimals.

  Organize into a **chart**.

- **Step 2**: **Line up** your decimal points and compare, starting from the left.

  As you **compare**, write a 1 beside the least number, a 2 beside the next bigger number, and so on.

- **Step 3**: Write the ***original*** fractions, mixed numbers, and decimals in order from least to greatest.

EXAMPLE 1:

Order the following set of fractions and decimals from least to greatest.

$$4\frac{2}{3} \qquad 4.9 \qquad 4.01 \qquad 4 \qquad \frac{17}{4}$$

Order	**Original** Fraction/Decimal	**Changed into a decimal** *(Line up neatly)*

ANSWER:

_____, _____, _____, _____, _____
LEAST *GREATEST*

EXAMPLE 2:

Order the following set of fractions and decimals from least to greatest.

$\frac{10}{3}$ 3.888 $3\frac{\overline{3}}{4}$ 30.6

ANSWER: _____, _____, _____, _____

A 3.888 $\frac{10}{3}$ 30.6 $3\frac{\overline{3}}{4}$

B $3\frac{\overline{3}}{4}$ 3.888 30.6 $\frac{10}{3}$

C $\frac{10}{3}$ $3\frac{\overline{3}}{4}$ 3.888 30.6

D 30.6 3.888 $3\frac{\overline{3}}{4}$ $\frac{10}{3}$

EXAMPLE 3

Order the following set of fractions from least to greatest.

$$\frac{1}{8}, \frac{2}{3}, \frac{5}{10}, \frac{1}{4}, \frac{3}{5}$$

ANSWER: _____, _____, _____, _____, _____

A. $\frac{1}{8}, \frac{2}{3}, \frac{5}{10}, \frac{1}{4}, \frac{3}{5}$

B. $\frac{2}{3}, \frac{5}{10}, \frac{3}{5}, \frac{1}{4}, \frac{1}{8}$

C. $\frac{1}{8}, \frac{1}{4}, \frac{5}{10}, \frac{3}{5}, \frac{2}{3}$

D. $\frac{5}{10}, \frac{1}{8}, \frac{3}{5}, \frac{1}{4}, \frac{2}{3}$

EXAMPLE 4

Capacity of Gas in Cars

Car	Gas (in gallons)
Buick	$15\frac{3}{10}$
Ford	$\frac{74}{5}$
BMW	15.4
Chrysler	14.9

This table shows the amount of gas in four cars. Which answer shows the cars in order from those containing the least amount of gas to those containing the greatest amount?

A. Chrysler, Ford, BMW, Buick
B. Ford, Chrysler, Buick, BMW
C. BMW, Buick, Chrysler, Ford
D. Buick, Ford, BMW, Chrysler

Steps to Solving Word Problems

Almost every math problem you will see in fifth grade will give you all the information you need to find the answer. In every problem there will be ***clue words*** *that tell you which* ***operation*** *to use. It is up to you, however, to learn those clue words so that you recognize them when you see them. Use Study Guide* ***A10*** *and follow the steps below to become a "Master Problem Solver"!*

➢ Understand

Read the problem *at least* twice. What is it asking you to do or find?

➢ Find and Mark Clues

Underline or **highlight** clue words that help you decide what operation you need to use.

➢ Find a Strategy and Solve

For easier problems, just find the correct operation and solve.

For more difficult problems, make a chart, draw a picture, work backwards, etc, and then choose the correct operation to solve.

➢ Look Back & Check

Reread the problem. Look at your answer.

- Does your answer make sense?
- Does it answer the question?
- Does it work when you plug it back into the problem?

Operation Vocabulary

ADDITION

$$\begin{array}{r} 22 \\ +10 \\ \hline 32 \end{array}$$

addends

sum

Key Words:

-- sum
-- in all
-- total
-- altogether
-- how many in all
--
--
--

-- addend
-- plus
-- increase
-- deposit

SUBTRACTION

$$\begin{array}{r} 36 \\ -\ 3 \\ \hline 33 \end{array}$$

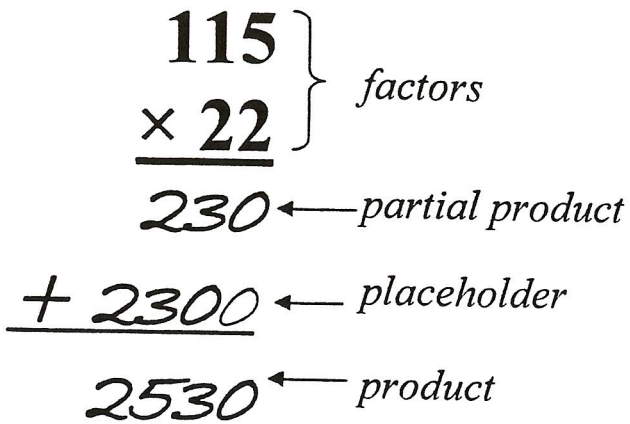
difference

Key Words:

-- minus
-- decrease
-- difference
-- altogether
-- take away
-- reduce
--
--
--
--

-- how many more
-- remained
-- deduct
-- left over
-- withdraw

MULTIPLICATION

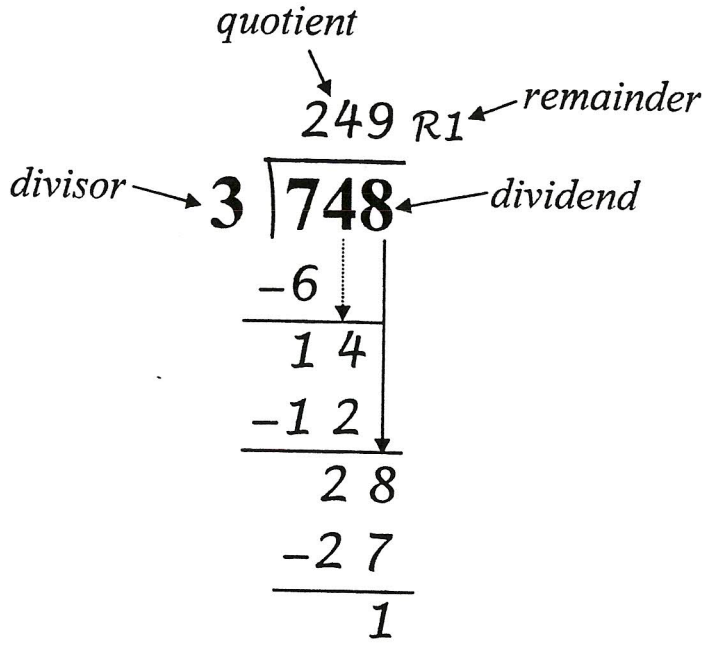


Key Words:

-- product
-- factors
-- **each**
-- altogether
-- twice as much
-- three times as much
-- doubled, tripled ….
-- four times as much
--
--

--**per**
-- altogether
-- twice
--
--

DIVISION



Key Words:

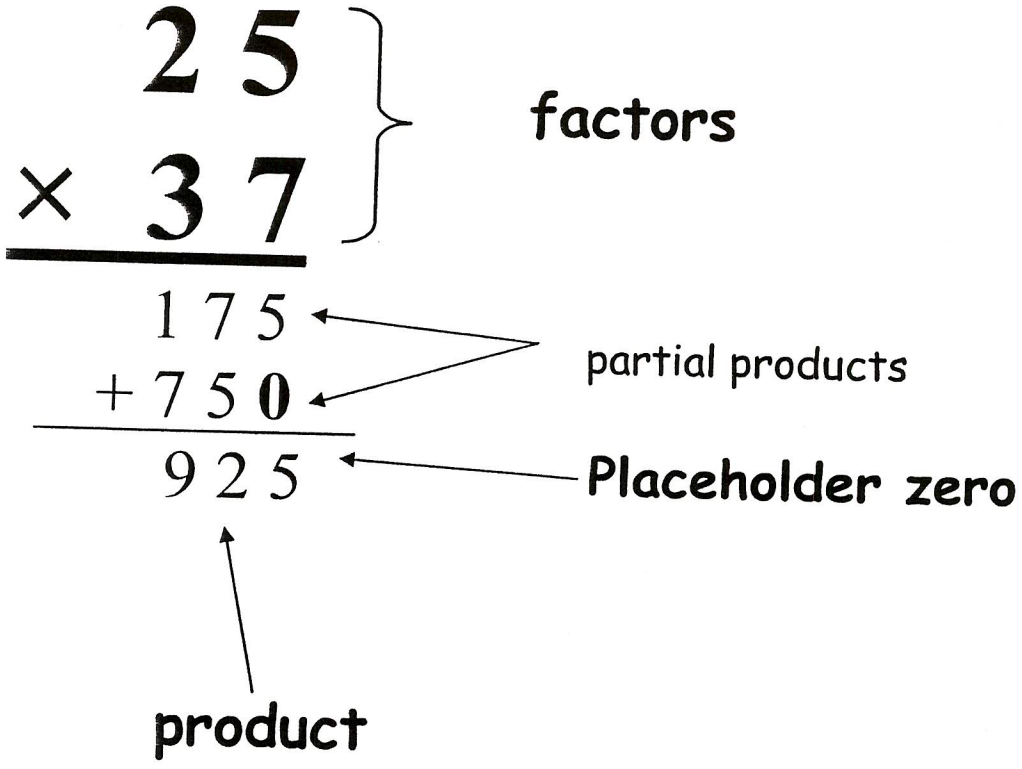
-- quotient
-- divisor
-- dividend
-- shared equally
-- equal number of
-- split equally between
-- divided equally among
-- **per**

-- how many in each
-- half of …
-- third of …
-- fourth of …

MULTIPLICATION

Students will solve problems involving multiplication of whole numbers in which products do not exceed five digits and factors do not exceed two digits.

VOCABULARY



How to Multiply 2-Digit Numbers

1) Multiply 42 × 8 to get a partial product

- 8 x 2 = 16, so write 6 and carry the 1
- 8 x 4 = 32, and 32 + 1 = 33, so write 33.
- Your partial product is 336

$$\begin{array}{r} 42 \\ \times\ 78 \\ \hline \end{array}$$

2) Write a "0" for your placeholder.

3) Multiply 42 x 7 to get your next partial product.

- 7 x 2 = 14, so write the 4 and carry the 1
- 7 x 4 = 28, and 28 + 1 = 29, so write down 29
- Your second partial product is 2940.

4) Draw a line and then <u>add</u> the two partial products together.

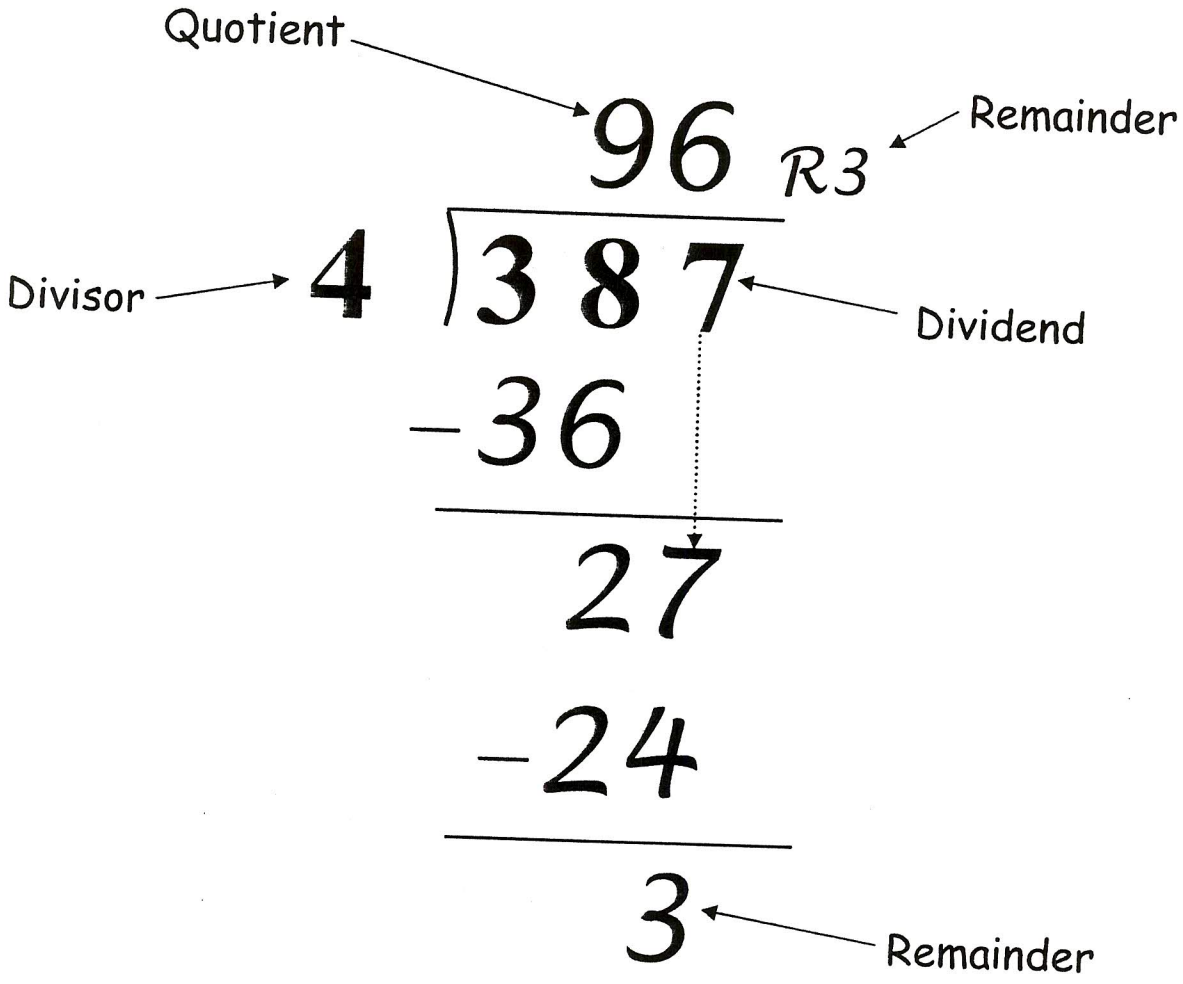
- 336 + 2940 = 3276

<u>Your final product is 3276</u>

DIVISION

*Find the **quotient** and **remainder** when given a **dividend** of four digits or fewer and a **divisor** of two digits or fewer.*

VOCABULARY



➢ Steps to Division

1. Divide
2. Multiply
3. Subtract
4. Bring down
5. Repeat
6. Check your work.

$$7\overline{)438}$$

➢ How to Check Your Answer

1.

1) Multiply the *quotient* by the *divisor*.

2) Add the *remainder* (if there is one)

2.

3) Check. The result should equal the *dividend*.

3. **Yes?** **No?**

DIVISION WITH LARGER DIVISORS

When solving division problems with larger divisors, you follow the same steps. There is just a little more work involved.

HOW TO SOLVE

1. Divide.

$27\overline{)829}$

- You start by figuring out many times 27 goes into 82. You may have to guess and multiply to figure that out. I know that 2 goes into 8 4 times, so I can start by guessing 27 goes into 82 four times.

---I start by guessing it goes 4 times.

---That was too large, so now I try 3 times.

☺ That works!!! So, 27 goes into 82 <u>three</u> times.

<u>Then continue to follow the division steps.</u>

2. **Multiply**
3. **Subtract**
4. **Bring down**
5. **Repeat**
6. **Check your work.**

NOW <u>YOU</u> TRY!!!

1) $44\overline{)1368}$

2) $31\overline{)2586}$

ADDING & SUBTRACTING DECIMALS

Students will find the sum, difference, and product of two numbers expressed as decimals through thousandths.

★ Adding Decimal Numbers

- Make sure you line up the decimal points of each **addend.**
- Bring the decimal straight down into your **sum.**

Example: **1.48**
+ 2.64 Line up your decimals and bring the decimal point down into the sum.

- **Whole numbers** always are on the left of the decimal point (adding a decimal and zero will help).

For example, **7** becomes **7.0,** **28** becomes **28.0,** and **4368** becomes **4368.0**

- If you have an **uneven right or left side,** you can **add zeros** to give all of your decimals the same number of places.

Example:

4	4.000
3.5	3.500
+ .149	+ 0.149

Sample problems:

4 + 1.98

6.743 + 24.3

Subtracting Decimal Numbers

- Always **line up** the **decimals.**
- With **word problems,** remember to **look at place value to choose your top number**...when dealing with decimals, the longer number is not always the largest.
- If your top number has less digits to the right of the decimal than your bottom number, you **must** add zeros to the top number before you subtract.

Example:

$$\begin{array}{r} 5.04 \\ -\ 3.681 \\ \hline \end{array} \quad \Rightarrow \quad \begin{array}{r} 5.040 \\ -\ 3.681 \\ \hline \end{array}$$

Sample problems:

$7.239 - 0.911$ $\qquad$ $6.9 - 4.231$ $\qquad$ $8 - 5.322$

Sam found 1.679 grams of salt in his sample of ocean water. Thomas found 3.1 grams in his sample. How much more salt did Thomas find than Sam?

Greatest Common Factors

Why this is important: You will need to find the greatest common factor (GCF) when simplifying fractions.

VOCABULARY:

➢ **Factor** – A number that when multiplied by another number equals a **product**

- **Some numbers have many factors:**

  Example: Factors of 36 are: 1, 2, 3, 4, 6, 9, 12, 18, 36

- **Some numbers only have a few factors:**

  Example: Factors of 15 are: 1, 3, 5, 15

- **Some numbers have <u>only</u> two factors.** These are called **<u>prime numbers</u>**.

  Example: The factors of 17 are: 1, 17

➢ **Greatest Common Factor (GCF)** – The greatest number that is a **factor** of two or more numbers.

HOW TO FIND THE GREATEST COMMON FACTOR (GCF)

Example: *Find the GCF of 16 and 24.*

- **Step 1:** Write down all the factors of each number

  16 – 1, 2, 4, 8, 16
  24 – 1, 2, 3, 4, 6, 8, 12, 24

- **Step 2:** Find the <u>greatest</u> number that is a factor of both. (*In this example, it is 8*)

PRACTICE:

1. Find the GCF of 36 and 20.

Number	Factors	GCF
36		
20		

2. **Find the GCF of 12 and 18**

Number	Factors	GCF
12		
18		

3. **Find the GCF of 5 and 30.**

Number	Factors	GCF
5		
30		

Least Common Multiple

Why this is important: *You will need to find the least common multiple when searching for a common denominator (when adding and subtracting fractions and mixed numbers).*

VOCABULARY:

- **Multiple** – The **product** of a number and other **factor**.

Example: The multiples of 5 are: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, ...

$5 \times 1 = 5$	$5 \times 6 = 30$
$5 \times 2 = 10$	$5 \times 7 = 35$
$5 \times 3 = 15$	$5 \times 8 = 40$
$5 \times 4 = 20$	$5 \times 9 = 45$
$5 \times 5 = 25$	$5 \times 10 = 50$

- **Least Common Multiple (LCM)** – The smallest number (other than 0) that is a multiple of two or more whole numbers.

HOW TO FIND THE LEAST COMMON MULTIPLE (LCM):

Example: Find the LCM of 6 and 4.

- **Step 1:** Write down the **multiples** of each number until you find one in common.

6 – 6, 12, 18, 24
4 – 4, 8, 12, 16, 20

- **Step 2:** Find the <u>smallest</u> number that is a multiple of both.
(In this example, it is 12.)

PRACTICE:

1. Find the LCM of 3 and 8.

Number	Multiples	LCM
3		
8		

2. Find the LCM of 5 and 7.

Number	Multiples	LCM
5		
7		

3. Find the LCM of 2 and 3.

Number	Multiples	LCM
2		
3		

Multiplying Decimals

You multiply decimals the same way you multiply whole numbers, except that you need to correctly place the decimal point in your product.

Example: Find the product of 1.80 and 2.4

- **Step 1**: Multiply as if the **factors** were whole numbers.
  (do not line up the decimals – ignore them for now)

$$\begin{array}{r} 1.80 \\ \times\ 2.4 \\ \hline \end{array}$$

- **Step 2**: Count the places to the right of the decimal point in the top factor. *(2)*
- **Step 3**: Count the places to the right of the decimal point in the bottom factor. *(1)*
- **Step 4**: Add those two numbers together. *(2 + 1 = 3)*
- **Step 5**: Count the same number of places from right to left in the **product**, and place your decimal point there.

4.320

EXAMPLE 1

4.52×0.7

EXAMPLE 2

6.9×1.2

EXAMPLE 3

$$\begin{array}{r} 1.237 \\ \times\ 0.2 \\ \hline \end{array}$$

EXAMPLE 4

$$\begin{array}{r} 0.11 \\ \times\ 25 \\ \hline \end{array}$$

DIVIDING WITH DECIMALS

Determine the quotient, given a dividend expressed as a decimal through ten-thousandths with a single-digit divisor and no annexing of zeros.

You divide decimals the same way as you divide whole numbers, except that you need to correctly place the decimal by bringing it straight up from the dividend into your quotient.

All of the problems you will see will have **no remainders.**

Example: Find the **quotient:** **55.04 ÷ 4**

Step 1: *Bring the decimal straight up.*

Step 2: *Divide as usual.*

$$4\overline{)55.04}$$

Answer: _____

Practice Problems

Example 1

$58.87 \div 7 =$

Example 2

$0.738 \div 6 =$

Example 3

$0.18 \div 9 =$

Example 4

$7\overline{)17.556}$

Fraction Vocabulary

Fraction – a number that represents part of something
(Example -- 3/4 of the students are girls)

$\frac{7}{8}$ ← **Numerator** (the number of parts you are talking about)

← **Denominator** (how many equal parts are in the whole)

$3\frac{1}{5}$ **Mixed Number** (A number that is part whole number and part fraction)

$\frac{3}{2}$ **Improper Fraction** (A fraction with a numerator greater than or equal to its denominator)

Simplest Form – A fraction is in simplest form when its numerator and denominator have **no common factor** other than 1

Simplifying Fractions

How to Write a Fraction In Simplest Form

$$\frac{4}{10} \div \frac{2}{2} = \frac{2}{5}$$

1) Divide both the numerator and the denominator by the **greatest common factor** of both numbers.

2) The fraction is in **simplest form** when both the numerator and the denominator have no common factor other than 1.

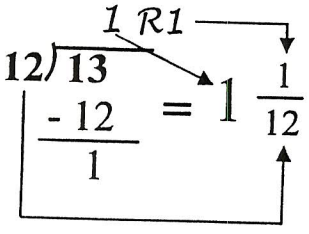
4 – 1, 2, 4
10 – 1, 2, 5, 10 → *(2 is the GCF, so you divide the fraction by 2 to simplify)*

How to Simplify Improper Fractions (Change into a mixed number)

$$\frac{13}{12} = 1\frac{1}{2}$$

1) Divide the denominator into the numerator to find your whole number (the quotient).

2) The remainder becomes your numerator and you keep the same denominator.



How to Change a Mixed Number Into An Improper Fraction

$$2\frac{3}{8} = \frac{19}{8}$$

1) Multiply the denominator by the whole number
2) Add the numerator to that product to get the numerator of your improper fraction.
3) Keep the same denominator for your improper fraction.

1) $8 \times 2 = 16$
2) $16 + 3 = 19$ (new numerator)
3) Keep same denominator (8)

ADDING & SUBTRACTING FRACTIONS

1) **Step 1**:

Does the problem have like denominators?

If YES, just add or subtract the numerators.

If NOT, follow the steps below:

Example 1—Same denominators

Simplify by dividing by GCF (2)

$$\frac{1}{8} + \frac{5}{8} = \frac{6}{8} \div \frac{2}{2} = \frac{3}{4}$$ ANSWER

2) **Step 2**:

Arrange the problem vertically on your paper.

3) **Step 3**:

Find your least common denominator (LCM)

4 – 4, 8, 12, 16
3 -- 3, 6, 9, 12, 15

Example 2—Different denominators

$$\frac{2}{4} + \frac{1}{3}$$

$$\frac{2}{4} \times \longrightarrow \frac{6}{12}$$

$$\frac{1}{3} \times \longrightarrow \frac{4}{12}$$

$$\frac{10}{12} \div \frac{2}{2} = \frac{5}{6}$$

Simplify by dividing by the GCF (2)

4) **Step 4**:

Find the new numerator
(multiply by the same number as denominator)

5) **Step 5**:

Add or subtract numerators.

6) **Step 6**:

Simplify (if needed). *Hint: Use the GCF.*

Add or subtract the fractions and write in simplest form. ***(Like denominators)***

EXAMPLE 1	EXAMPLE 2	EXAMPLE 3
$\frac{1}{6} + \frac{2}{6} =$	$\frac{3}{8} + \frac{3}{8} =$	$\frac{7}{12} - \frac{5}{12} =$

Add or subtract the fractions and write in simplest form. ***(Unlike denominators)***

EXAMPLE 4	EXAMPLE 5	EXAMPLE 6
$\frac{2}{3} - \frac{1}{4} =$	$\frac{3}{8} + \frac{1}{3} =$	$\frac{7}{8} - \frac{2}{5} =$

Simplify each fraction below.

EXAMPLE 7	EXAMPLE 8	EXAMPLE 9
$\frac{4}{6} =$	$\frac{22}{30} =$	$\frac{6}{21} =$
EXAMPLE 10	**EXAMPLE 11**	**EXAMPLE 12**
$\frac{43}{5} =$	$3\frac{5}{15} =$	$\frac{11}{4} =$

ADDING & SUBTRACTING MIXED NUMBERS

*The student will add and subtract **mixed numbers** with like and unlike **denominators**, and with and without **regrouping**.*

Adding Mixed Numbers

1) Add whole numbers

2) Add fractions as normal.

3) Simplify if needed.

4) If simplest form of the fraction is a mixed number remember to add the whole part to your original whole number sum.

$$7\frac{1}{2} \times \frac{4}{4} = \frac{4}{8}$$

$$+\ \frac{7}{8} \times \frac{1}{1} = \frac{7}{8}$$

$$7\ \frac{11}{8} = 1\ \frac{3}{8}$$

$+$

Add the whole numbers together.

ANSWER $= 8\ \frac{3}{8}$

Examples:

1) $5\ \frac{3}{8} + 4\ \frac{2}{8}$	2) $4\ \frac{2}{3} + 1\ \frac{1}{2}$
3) $7\ \frac{2}{5} + 2\ \frac{1}{3}$	4) $3\ \frac{2}{3} + 5\ \frac{3}{4}$

Subtracting Mixed Numbers

1) Subtract fractions first.
(to see if you need to borrow)

2) Borrow from whole number.
(if necessary)

3) Subtract whole numbers.

4) Simplify if necessary.

$$4\tfrac{2}{9} \times \tfrac{1}{1} = \tfrac{2}{9} + \tfrac{9}{9} = \tfrac{11}{9}$$

$$-\,3\tfrac{2}{3} \times \tfrac{3}{3} = \tfrac{6}{9} \qquad \tfrac{6}{9}$$

$$0 \qquad \tfrac{5}{9}$$

ANSWER $= \frac{5}{9}$

Examples:

1)

$$3\tfrac{8}{12}$$
$$-\,1\tfrac{4}{12}$$

2)

$$6\tfrac{3}{10}$$
$$-\,2\tfrac{7}{10}$$

3)

$$4\tfrac{1}{3}$$
$$-\,2\tfrac{1}{2}$$

4)

$$6\tfrac{1}{8}$$
$$-\,5\tfrac{1}{6}$$

U.S. Customary Length

Students will solve problems involving measurement by selecting an appropriate measuring device and a customary unit of measure for length – part of an inch (1/2, ¼, 1/8), inches, feet, yards, miles

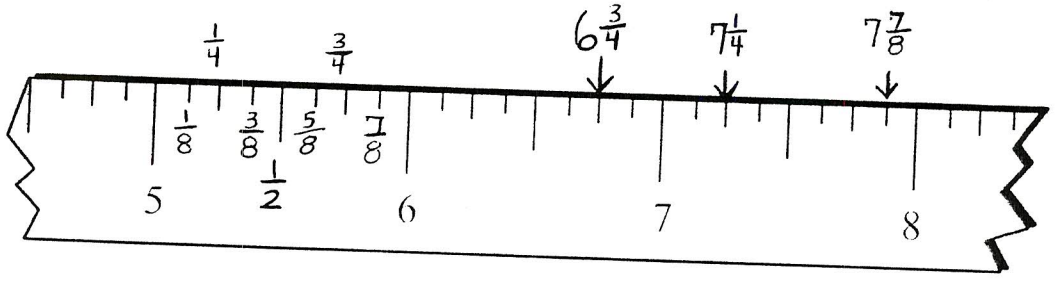
Customary Units—MEMORIZE THESE!!!

- **Inch (in.)** – about half the length of your **thumb**
- **Foot (ft)** – 12 inches – the length of a **regular ruler**
- **Yard (yd.)**– 3 feet – width of a **modular window**, or length of a **baseball bat** or yardstick
- **Mile (mi.)** – 5,280 feet – about the distance from our **school to the post office** in Franklin

Measuring Devices for Length

- **Ruler** – usually 12 inches long
- **Yardstick** – 3 feet long
- **Measuring tape** – Can be different lengths – useful for measuring objects longer than a yard or objects that are not straight

Reading a Customary Ruler -- Inches



You are expected to be able to measure to the nearest eighth of an inch. The marks on the ruler above are labeled for the first inch. YOU WILL NEED TO KNOW THESE, BECAUSE THE RULER YOU WILL USE FOR CLASSROOM ASSIGNMENTS AND FOR THE SOL TEST **ARE NOT LABELED** FOR YOU. We will be practicing with the actual rulers in class.

You will also be expected to choose the correct measuring device and/or unit to measure an object with.

Examples of length questions:

1. Which is the *best* estimate for the length of a pencil?

A) 2 cm B) 7 inches

C) 7 feet D) 1 yard

2. Which answer shows the **best** tool and unit of measure to use to find the length of a school bus?

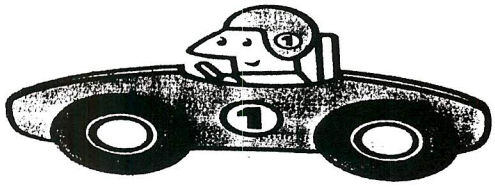
A) ruler, inches

B) balance, feet

C) ruler, grams

D) measuring tape, feet

3. What is the length of the object below to the nearest 1/8 inch?



A) 24 inches B) 3 inches

C) 2 3/8 inches D) 2 ½ inches

4. What is the best unit of measure to use to find the distance from Richmond to Roanoke?

A) inches B) feet

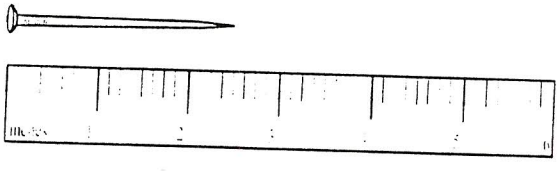
C) miles D) yards

5. What is the measure of the line segment to the nearest $\frac{1}{8}$ inch?

A. $2\frac{7}{8}$ inches C. $2\frac{5}{8}$ inches

B. $2\frac{1}{2}$ inches D. $2\frac{3}{4}$ inches

6. What is the length of the nail to the nearest half-inch?



A. $1\frac{1}{2}$ inches C. $2\frac{1}{2}$ inches

B. 2 inches D. 3 inches

Metric Length

Students will solve problems involving measurement by selecting an appropriate measuring device and a metric unit of measure for length – millimeters, centimeters, meters, and kilometers

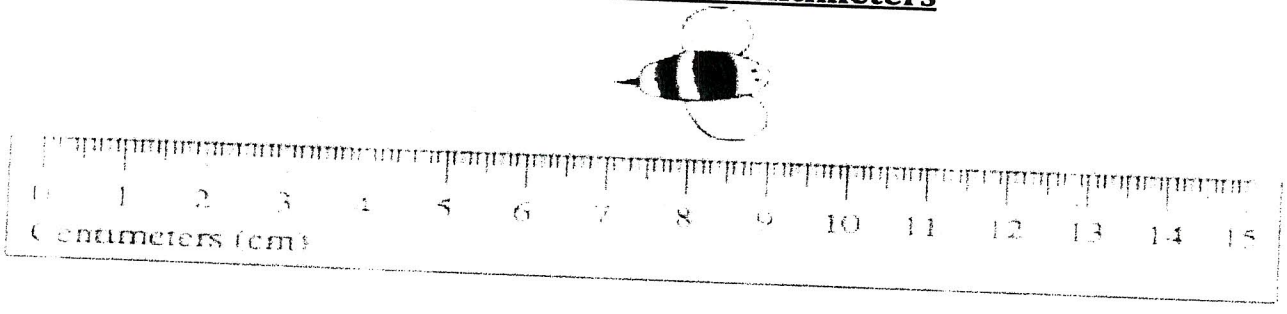
Metric Units of Length—MEMORIZE THESE!!!

- **Millimeter (mm.)** – about the *thickness* of a **dime** (very small)
- **Centimeter(cm)** – 10 millimeters -- about the *width* of your **pinky fingernail**
- **Meter (m)**– 100 centimeters – width of a **modular window**, or length of a **baseball bat** or meter stick
- **Kilometer (km)** – 1,000 meters – about the distance from **Food Lion to Wal-mart** in Franklin

Measuring Devices for Metric Length

- **Ruler** – usually 30 centimeters long
- **Meter stick** – 1 meter long
- **Measuring tape** – Can be different lengths – useful for measuring objects longer than a meter or objects that are not straight

Reading a Metric Ruler – Millimeters and Centimeters



You are expected to be able to measure to the nearest millimeter. This is easy compared to inches!!! There are ten millimeters in 1 centimeter. The numbers shown on the ruler are the centimeter markings, and the tiny lines in between are the millimeters. You just have to multiply by 10 to find out how many millimeters are in a certain number of centimeters: For example, 3 centimeters would be equal to 30 millimeters.

You will also be expected to choose the correct measuring device and/or unit to measure an object with.

Examples of metric length questions:

1. Which is the *best* estimate for the length of an unsharpened pencil?

   A) 18 millimeters B) 7 centimeters

   C) 18 centimeters D) 18 inches

2. Which answer shows the **best** tool and unit of measure to use to find the length of a school bus?

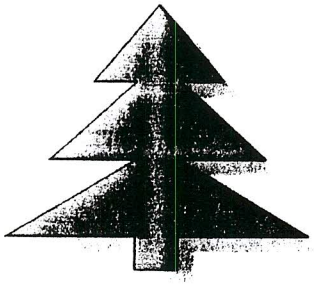
   A) ruler, millimeters

   B) balance, cetimeters

   C) measuring tape, centimeters

   D) measuring tape, meters

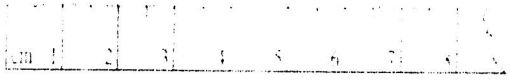
3. Use your ruler to measure the height of the tree below. Which of the answers is closest to the height of the tree?



   A) 35 millimeters B) 35 centimeters

   C) 1 ½ centimeters D) 3 millimeters

4. What is the measure of the line segment to the nearest centimeter?



   A. 2 cm

   B. 3 cm

   C. 24 cm

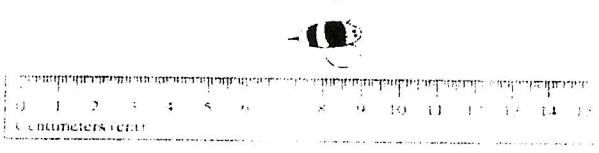
   D. 25 cm

5. What is the best unit of measure to use to find the distance from Richmond to Roanoke?

   A) millimeters B) kilometers

   C) centimeters D) meters

6. The length of the bee is about _____



   A. 1 centimeter.

   B. 2 centimeters.

   C. 3 centimeters.

   D. 3 inches.

WEIGHT/MASS

Students will solve problems involving measurement by selecting an appropriate measuring device and unit of measurement to find the weight/mass of an object.

- **Weight**—how light or heavy something is
- **Mass** – the amount of matter that an object contains

Customary Units of Weight –(ounces, pounds, tons)—**MEMORIZE THESE!!!!**

- **Ounce (oz.)** – 1 ounce is about the weight of ***1 slice*** **of bread**
- **Pound (lb.)** – Equal to 16 oz. – 1 pound is about the weight of a ***loaf*** **of bread**
- **Ton (T)** – Equal to 2000 lbs. – 1 ton is about the weight of a **pick-up truck**

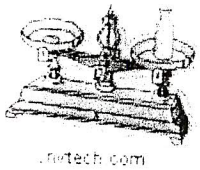
Metric Units of Mass – (grams, kilograms)

- **Gram (g)** – 1 gram has about the same mass as a **paper clip**
- **Kilogram (kg)** – 1 kilogram has about the same mass as a **reading textbook**

Measuring Devices – (for metric & customary measurements)

Scales

Balance



You are expected to be able to choose an appropriate **unit** and **measuring device** to measure the weight/mass of an item.

Examples of Weight/Mass Questions:

1. Which answer shows the *best* tool and unit of measure to use to find the mass of 5 textbooks? A) ruler, inches B) balance, pounds C) balance, millimeters D) ruler, grams	2. Which unit would *most often* be used to determine the mass of one dogwood flower? A) gram B) kilogram C) Meter D) Liter
3. A recipe calls for 25 grams of sugar. This amount is closest to – A) 1 pound B) 1 ounce C) 10 pounds D) 10 ounces	4. Which unit would *most often* be used to determine the mass of a television set? A) gram B) ounce C) gallon D) pound
5. Carlos must weigh in before the wrestling match. Which metric unit will most likely be used to record his weight? A. milligrams B. centigrams C. grams D. kilograms	6. An egg weighs about – A. 2 ounces B. 8 ounces C. 1 pound D. 2 pounds

Liquid Volume

Students will solve problems involving measurement by selecting an appropriate measuring device and unit of measurement to determine liquid volume

- **Liquid Volume** (Capacity) — **the amount of liquid that a container can hold**

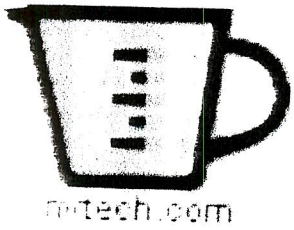
Customary Units of Volume –(cups, pints, quarts, gallons)—**MEMORIZE THESE!!!**

- **Cup (c)** – think about a **coffee cup**
- **Pint (pt)** – Equal to 2 cups. – think of a **large drink machine soda** bottle
- **Quart (qt)** – Equal to 2 pints. – think of a **quart of oil**
- **Gallon (gal)** – Equal to 4 quart. – think of a **gallon of milk**

Metric Units of Liquid Volume – (milliliters, liters)

- **Milliliter (ml)** – about the same volume as **20 drops of water** – not much!!!!!
- **Liter (l)** – same as ***half*** **of a 2-liter bottle of soda**

Devices to Measure Liquid Volume



Measuring cup

Graduated Cylinder

You will be expected to choose an appropriate measuring device and unit to measure liquid volume.

Examples of Liquid Volume Questions:

1. The liquid volume of a swimming pool would most often be measured in –

   A) cups
   B) gallons
   C) milliliters
   D) pints

2. A measuring cup would be best used to measure –

   A) gallons
   B) quarts
   C) liters
   D) cups

3. You are served a container of milk each day with your school lunch. The liquid volume of this container is *closest* to –

   A) 1 liter
   B) 1 cup
   C) 1 milliliter
   D) 1 quart

4. Samantha has a bad cold and is measuring out medicine from a bottle. The unit most often used to measure the amount of medicine she should take would be –

   A) cups
   B) liters
   C) pints
   D) milliliters

Temperature

You need to **memorize** *the following temperatures:*

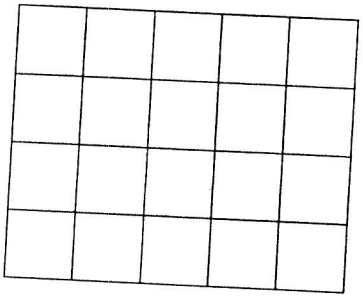
	Celsius	Fahrenheit
Boiling point of water:	100° C	212° F
Normal body temperature:	37° C	98.6° F
Room temperature:	20° C	70° F
Freezing point of water:	0° C	32° F

- ***Fahrenheit*** is the system most commonly used in the United States (where we live).

- ***Celsius*** is used in most other countries around the world, as well as in science.

Area and Counting Square Units

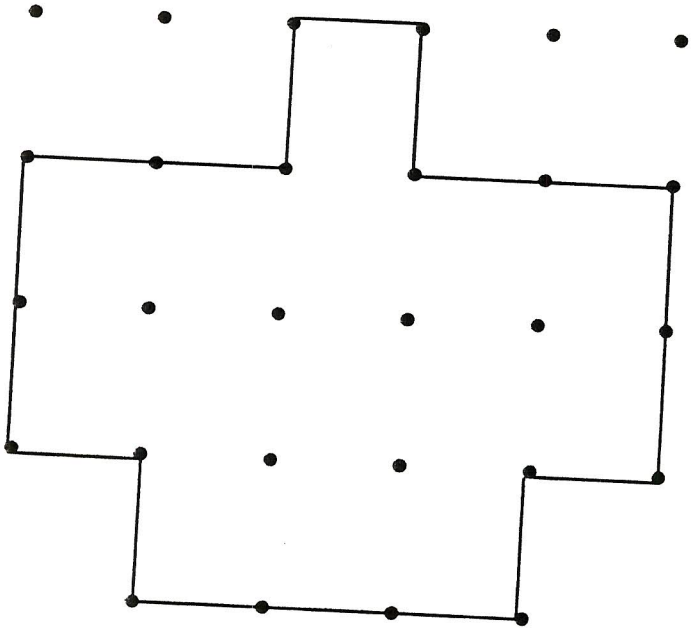
Example 1: ***What is the area of the figure below?***



_____ square units

The figure is already divided into square units, so you simply count how many there are.

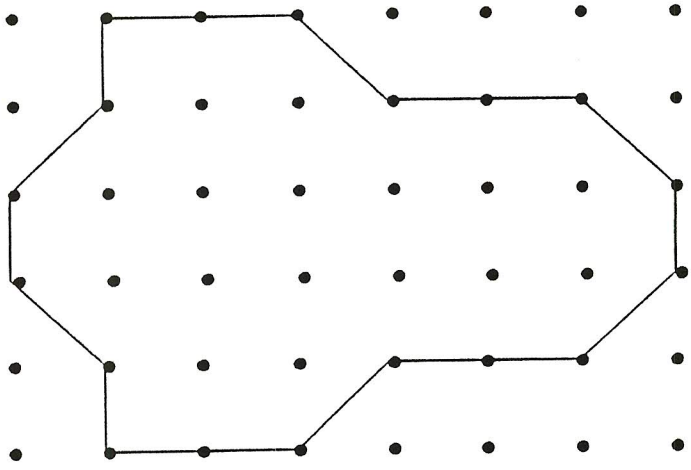
Example 2: ***What is the area of the figure below?***



_____ square units

In this example the figure is not yet divided into square units, so you will need to do that by drawing lines to connect the dots. Make sure *every* dot is connected before you count.

Example 3: ***What is the area of the figure below?***



Total # of whole squares:_____

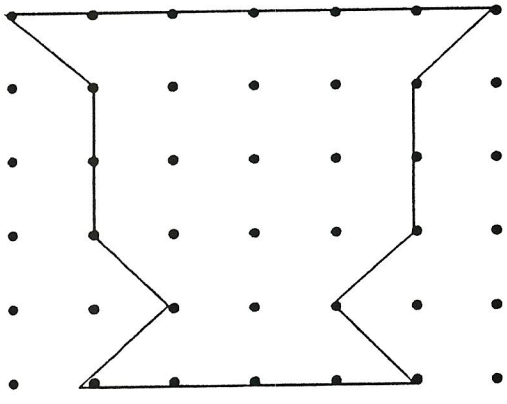
Tally of assembled squares:_____

Total square units:_____

To find the area of this figure:

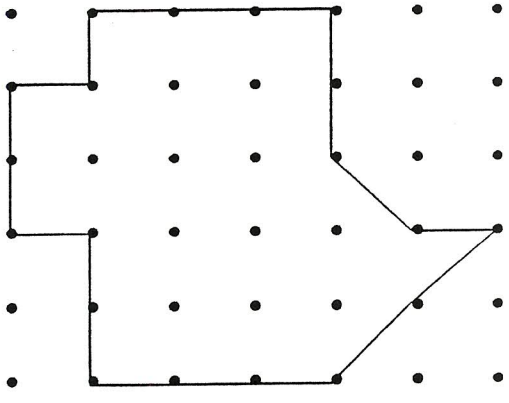
- **Draw lines to connect every dot**
- **Write a number in every *whole* square, making a note of the total.**
- **Add half squares (triangles) to form whole squares. (2 triangles = 1 square unit)**
  Hint: Shade them in as you match pairs to form wholes. This prevents you from counting them twice.
- **Add these to the total of whole square units to find the area.**

Example 4:



Area: _____sq. units

Example 5:



Area: _____sq. units

Collecting, Organizing, and Displaying Data

❖ Collecting Data

There are **four** different ways to collect data: (***SOME***)

- **Surveys** *(example: favorite TV show, number of siblings)*
- **Observations** *(example: weather, sunset times)*
- **Measurement** *(example: shoe sizes, student height*
- **Experiments** *(example: plant growth, evaporation rates)*

❖ Organizing Data

You can organize data using a:

1) **chart**
2) **table** (example: tally chart)

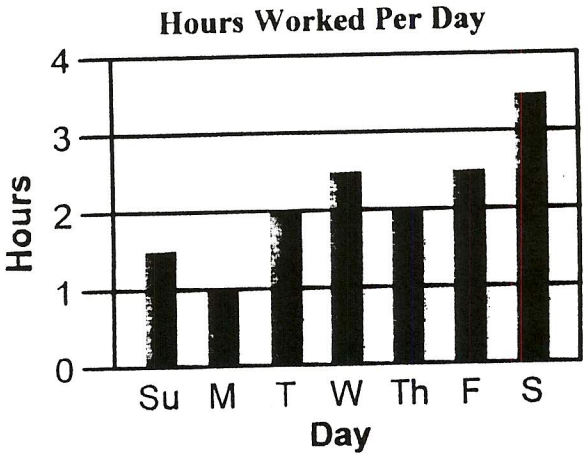
❖ Displaying Data

You can display data using a variety of graphs, including:

- **Bar graph** – shows comparisons (easy to see greatest and least amounts)
- **Line graph** – shows changes over time (whether it increases, decreases, or remains the same)
- **Stem and Leaf Plots** – allow you to easily see the greatest, least, and median values in a set of data

(Examples of each of the above graphs are on the back of this sheet)

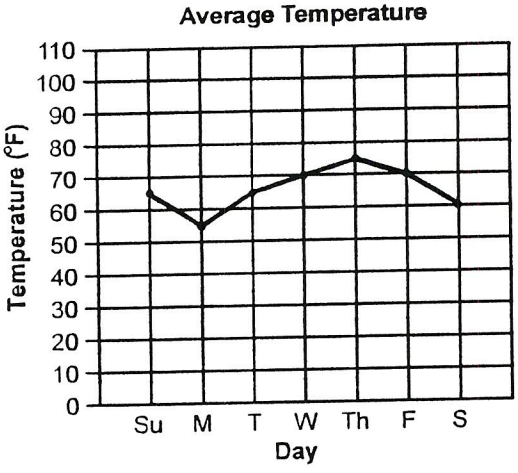
Bar Graph



Best for comparing

Line Graph

Best for showing change over time



Stem and Leaf Plot

Ages of Visitors to Park

Stem	Leaves
1	8 9
2	0 3
3	1 4
4	5
5	2 3 6

Key: 1/8 = 18

Best for displaying a large set of numbers

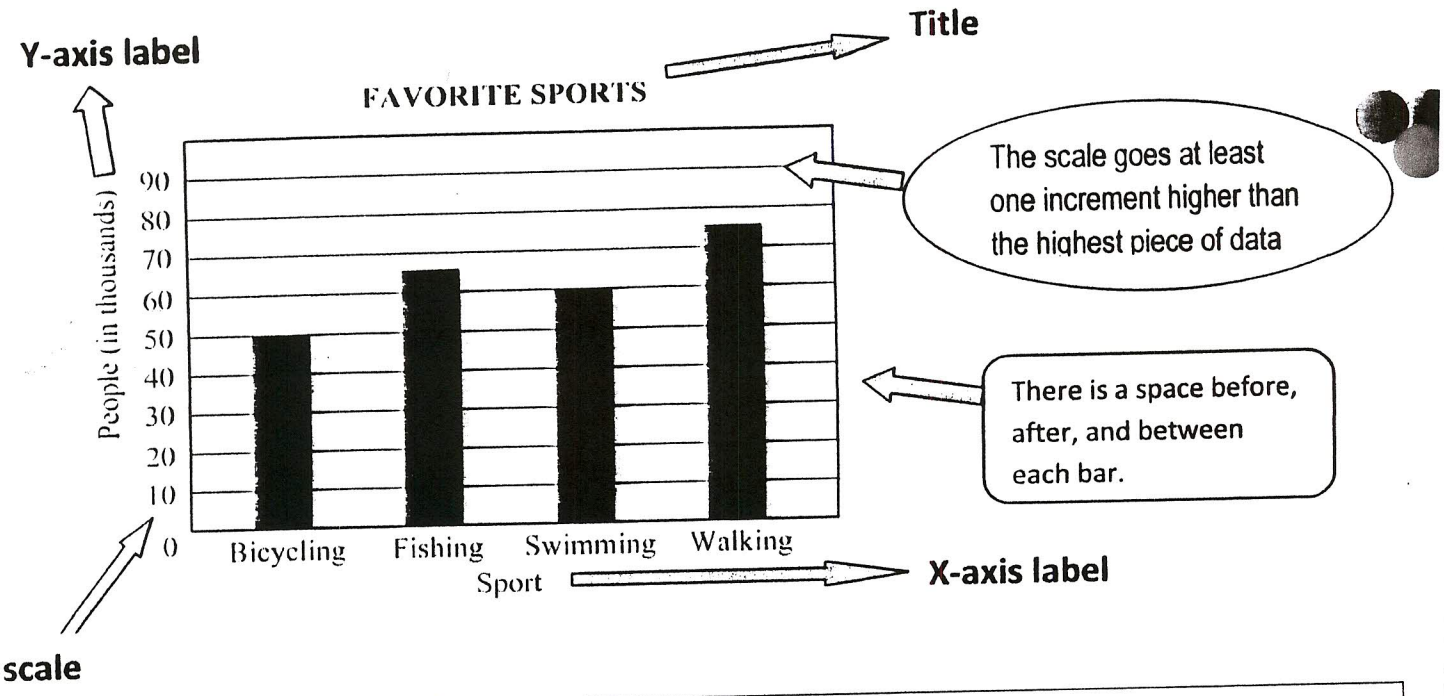
Bar Graphs

What is a bar graph?

- Bar graphs are used to **compare** counts of different categories
- It uses either horizontal or vertical bars to represent counts for several categories. One bar is used for each category.
- The length of the bar represents the count for that category.

A bar graph must have the following:

- **Title**
- Labeled **y-axis** (*Label tells what information is being given on that axis)*
- Labeled **x-axis** *(Label tells what information is being given on that axis)*
- One axis labeled with whole number, fraction, or decimal increments (**scale)**
  (examples: 1, 2, 3...; 2 , 4, 6...; 1, 1.5, 2 ...; 1, 1½ , 2, 2½ .....)
- One axis labeled with **categories** *(examples: TV shows, songs, shoe sizes, etc)*
- Bars for each category (with length of the bar representing the count for that category)
- Space before, between, and after each bar
- The axis with the scale should extend one increment above the greatest recorded piece of data *(example: if your highest count in any category is 24, then your scale must go to 25)*



1. What sport is the least favorite as shown on the bar graph above? A) Walking B) Swimming C) Fishing D) Bicycling	**2. How many more people chose walking than swimming?** F) 1 ½ G) 10 H) 15 J)75
3. How many people altogether chose fishing or swimming? A) 5 B) 60 C) 65 D) 125	**4. What is the total number of people surveyed for this graph?** F) 250 G) 90 H) 80 J) 75

Line Graphs

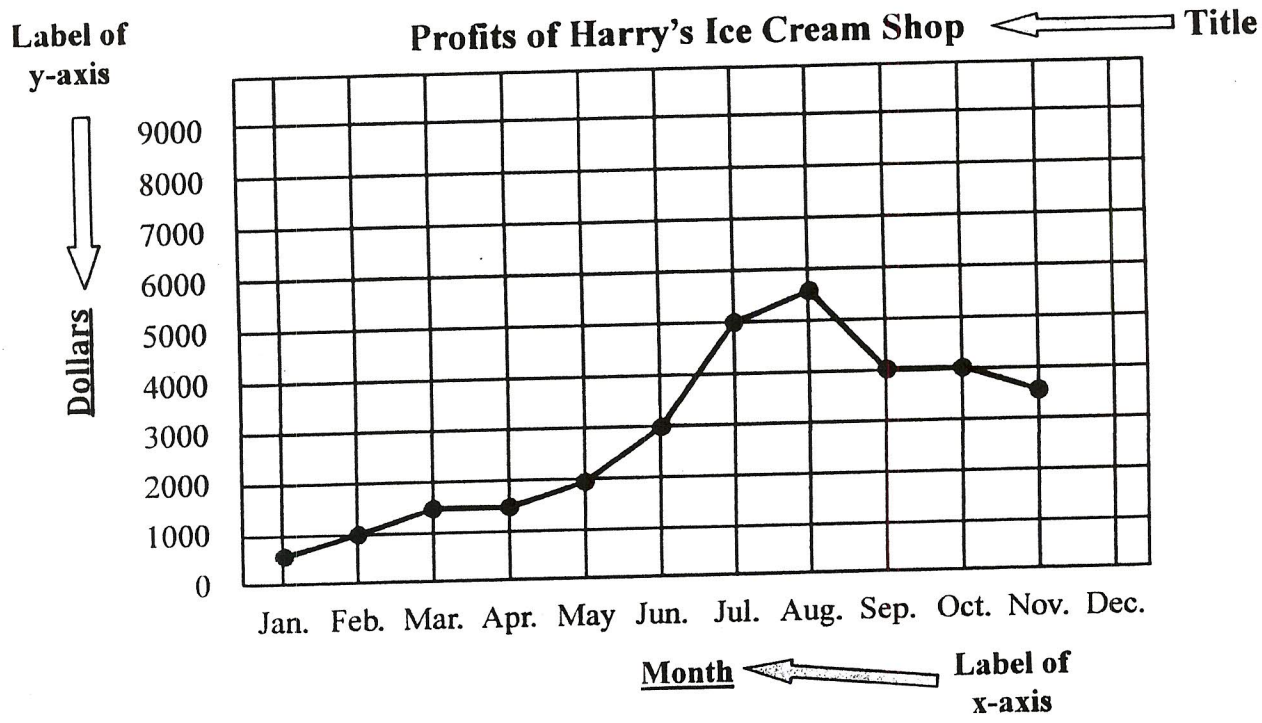
What Is a Line Graph?

- A **line graph** is best used to **show changes in data collected over a period of time**.
- The time periods measured are listed on the x-axis.
- The scale (numbers) are shown on the y-axis.
- The rise and fall of the line shows you the change:
  - When the line **rises**, it shows an **increase**
  - When the line **falls**, it shows a **decrease**
  - If the line **does not rise or fall** (it stays flat), it means there was **no change**

A line graph must have the following:

- **Title**
- **Labeled x-axis** (shows the time periods – days, weeks, times, months, etc.)
- **Labeled y-axis**. (shows the scale)
- **Line** drawn to connect plotted points (dots) on the graph
- **The line begins with the first plotted number, NOT AT ZERO.**

An example of a line graph is on the back of this sheet.



1) Which month had the lowest profit? A. December B. August C. January D. June	**2) By how much did profits increase from April to July?** A) $6500 B) $5000 C) $3,500 D) $4.00
3) What happened to profits between August and December? A. The profits doubled. B. The profits increased. C. The profits decreased. D. The profits remained the same	**4) Between which two months was there the largest decrease in profits?** A) March to April B) October to November C) September to October D) August to September

Stem and Leaf Plots

This type of graph organizes a set of numbers. It has the following characteristics:

- The numbers are organized from least to greatest.
- Each number is separated into a stem (# in the tens place) and a leaf (# in the ones place)
- Stems are listed vertically from least to greatest on the left side of the graph.
- Leaves are listed horizontally from least to greatest, and are separated by commas or spaces
- Every value is recorded, no matter how often it repeats
- A key is included to explain how to read the plot

Stem and Leaf Plot Example:

A teacher used a stem and leaf plot to organize the following test scores:

52, 59, 69, 71, 73, 73, 76, 82, 84, 84, 86, 86, 86, 87, 91, 95, 98

Test Scores

STEM	LEAF
5	2, 9
6	9
7	1, 3, 3, 6
8	2, 4, 4, 6, 6, 6, 7
9	1, 5, 8

Key: 5/2 = 52

You can easily find the following information using the stem and leaf plot:

Lowest test score:_____ Highest test score _____

How many students scored an 86 on the test? _____

If a score of 70 or higher is passing, how many students passed the test? _____

If a score of 70 or higher is passing, how many students failed the test? _____

How to Construct a Stem and Leaf Plot

Problem:

You are given the ages of teachers at Smith Elementary School and asked to make a Stem and Leaf Plot using the information.

Ages of Teachers at Smith Elementary School: 24, 32, 46, 61, 34, 42, 41, 31, 43, 27, 49, 29, 45, 46, 56, 59, 30, 40

- **Step 1**: List the numbers in order from least to greatest:

  24, 27, 29, 30, 31, 32, 34, 40, 41, 42, 43, 45, 46, 46, 49, 56, 59, 61

- **Step 2**: Draw the Stem and Leaf Plot.
- **Step 3**: Add a title. *(Ages of Teachers at Smith Elementary School)*
- **Step 4**: Write the tens digits from least to greatest going from top to bottom in the stem column. *These are the stems.*
- **Step 5**: Write the ones digits in order from least to greatest in the rows next to their tens digit stem. *These are the leaves.*
- **Step 6**: Write a key that explains how to read the stems and leaves. *(5 2 = 52)*
- **Step 7**: Analyze the Stem and Leaf Plot – what does it tell you????

Ages of Teachers at Smith Elementary School

STEM	LEAF
2	4, 7, 9
3	0, 1, 2, 4
4	0,1, 2, 3, 5, 6, 6, 9
5	6, 9
6	1

Key: 5/2 = 52

The stem-and-leaf graph shows the numbers of cans of food collected by different students for the annual food drive.

Use it to answer questions 1-3.

Cans of Food Collected

Stem	Leaves
1	8 9
2	0 3 3
3	1 4
4	5
5	2 3 6

Key: 1/8 = 18

1) Which is the greatest number of cans collected by any one student?

A. 18
B. 56
C. 65
D. 91

2) How many students collected more than 30 cans of food?

A. 2
B. 6
C. 4
D. 34

3) How many students altogether collected cans of food?

A. 18
B. 11
C. 5
D. 56

Use the Stem and Leaf Plot below to answer questions 4-6.

Laps Ran

Stem	Leaves
0	7 9
1	0 5 7 9
2	0 0 2 5 6
3	0 1 2 2

Key: 1/0 = 10

4) Which is the least number of laps run by any one student?

A. 0
B. 7
C. 10
D. 79

5) What is the most common number of laps run?

A. 0 and 2
B. 20 and 22
C. 7 and 9
D. 20 and 32

6) How many students walked more than 20 laps?

A. 7
B. 13
C. 9
D. 238

7) Mary recorded the following temperatures during a two-week period:

83 81 79 78 78 80 78 83
75 69 67 67 74 66

Which of the following shows the correct stem and leaf plot for the data in the problem above?

A)

High Temperatures

Stem	Leaves
6	6 7 9
7	4 5 8 9
8	0 1 3

B)

High Temperatures

Stem	Leaves
6	4 5 8 8 8 9
7	6 7 7 9
8	0 1 3 3

C)

High Temperatures

Stem	Leaves
6	7 9 6
7	5 8 9 4
8	1 0 3

D)

High Temperatures

Stem	Leaves
6	6 7 7 9
7	4 5 8 8 8 9
8	0 1 3 3

8) Marvin recorded the following ages of people attending a party.

16 29 28 15 22 25
34 48 17 40 48 27

Which of the following shows the correct stem and leaf plot for the data in the problem above?

F)

Ages of Those Attending Party

Stem	Leaves
1	3
2	5
3	1
4	3

G)

Ages of Those Attending Party

Stem	Leaves
1	5 6 7
2	2 5 7 8 9
3	4
4	0 8 8

H)

Ages of Those Attending Party

Stem	Leaves
1	5 6 7
2	2 5 7 8 8 9
3	4
4	0 8

J)

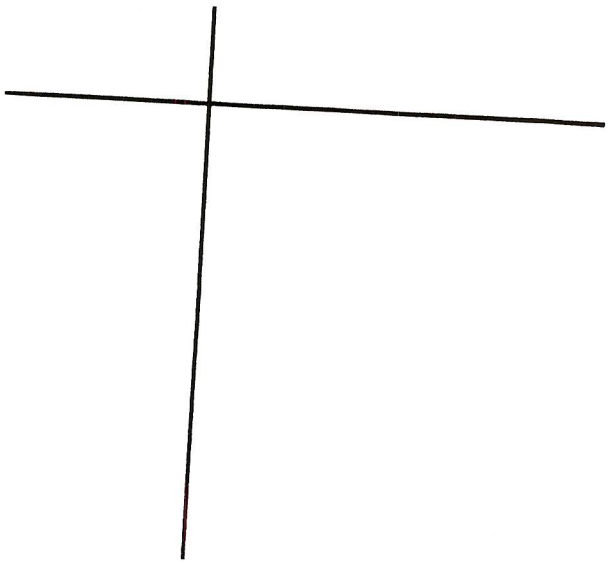
Ages of Those Attending Party

Stem	Leaves
1	5 6 7
2	2 5 7 8 9
3	4
4	8 8

9) **STEM AND LEAF PLOT # 1**

Benchmark Scores

67 92 84 71 65 92 84 77
78 84 95 70 80 60 92 84

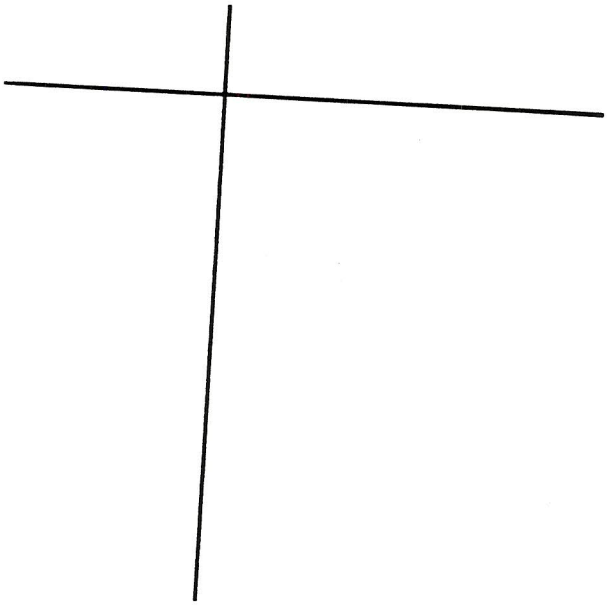


1. What was the lowest score? _____
2. What was the highest score? _____
3. What was the most frequent score? _____
4. How many students took the test? _____
5. How many scored higher than 70? _____
6. How many students scored an 85 or higher? _____

10) **STEM AND LEAF PLOT # 2**

Ages of Club Members

27 62 39 45 50 24 37 45 60
47 42 53 49 29 37 47 66 37



1. How old was the youngest member? _____
2. How old was the oldest member? _____
3. What was the most common age? _____
4. How many members are between 35 and 60 years old? _____
5. How many members are younger than 39? _____
6. Which age group had the most members?

People in their: 20s 30s 40s 50s 60s