Academic Refresher

This packet may be used as a brush-up in preparation for basic academic testing. It contains samples of math problems and English usage rules. It is designed as a quick review for persons who learned the material but may not have used it in years. It is not intended to teach new information. A few rules of algebra and mathematical formulas have been included.

Acknowledgements

Contemporary Books Inc.
Number Power 2: Fractions, Decimals and Percents by Jerry Howett
Pages: 14,17,24,29,32, 34, 55, 57, 59, 64 and 67.

Number Power 3: Algebra by Robert Mitchell
Pages: 6,12,14,16,24,27 and 28.

Pacemaker, Practical English Series
Capitalization and Punctuation Make Sense by Arlene G. Clarke and Marlene B. Clarke
Pages: 119,120,121,122 and 123.

Special thanks to Robert L. Bates, faculty member at Mid Florida Technical Institute, for sharing his methodology for solving percent.

Adding Decimals

To add decimals, first line them up with *point under point.* Remember: Any whole number is understood to have a decimal point at its right.

EXAMPLE: Add 2.46 + .005 + 16

Step 1. Line up point under point. Notice the decimal point after the whole number 16.

Step 2. Add

$$\begin{array}{r} 2.46 \\ .005 \\ +16. \\ \hline 18.465 \end{array}$$

Subtracting Decimals

To subtract decimals: put the larger number on top; line up the decimal points, add zeros to the right so that each decimal has the same number of places; and subtract as you would for whole numbers, bringing down the decimal point.

EXAMPLE: 15.200 – .184

Step 1. Put the larger number on top and fine up the decimal points.

Step 2. Add zeros to give the top number the same number of places as the bottom number.

Step 3. Subtract and bring down the decimal point.

$$\begin{array}{r} 15.200 \\ -.184 \\ \hline 15.016 \end{array}$$

Multiplying Decimals

To multiply decimals, multiply the two numbers the same way you would whole numbers. Then count the number of decimal places in both numbers you are multiplying. Decimal places are numbers to the right of the decimal point. Put the total number of places in your answer.

EXAMPLE:

$$\begin{array}{rl} 4.36 & \text{two decimal places} \\ \times 2 & \text{no decimal places} \\ \hline 8.72 & \text{two decimal places} \end{array}$$

Dividing Decimals by Whole Numbers

To divide a decimal by a whole number, bring the point up in the answer directly above its position in the problem. Then divide as you would whole numbers.

EXAMPLE 1.

$$\begin{array}{r} 2.33 \\ 4\overline{)\,9.32} \\ 8 \\ \hline 13 \\ 12 \\ \hline 12 \\ 12 \end{array}$$

EXAMPLE 2.

$$\begin{array}{r} .037 \\ 6\overline{)\,.222} \\ 0 \\ \hline 22 \\ 18 \\ \hline 42 \\ 42 \end{array}$$

Dividing Decimals by Decimals

To divide by a decimal, you must change the problem to a problem in which you are dividing by a whole number.

EXAMPLE: $.03\overline{)4.374}$

Step 1. Move the point in the number outside the bracket (the divisor) to the right as far as it will go.

$$.03\overline{)4.374}$$

Step 2. Move the point in the number inside the bracket (the dividend) the same number of places that you moved the point in the divisor.

$$.03\overline{)4.37\,4}$$

Step 3. Bring the point up in the answer directly above its new position in the dividend and divide.

$$\begin{array}{r} 1\,45.8 \\ .03\overline{)4.37\,4} \end{array}$$

Adding Fractions

ADDING FRACTIONS WITH THE SAME BOTTOM NUMBERS (DENOMINATORS)

Sometimes the total of an addition problem can be reduced.

EXAMPLE:

$$\begin{array}{r} \frac{5}{12} \\ +\frac{1}{12} \\ \hline \frac{6}{12}=\frac{1}{2} \end{array}$$

Step 1. Add the top numbers: 5 + 1 = 6

Step 2. Place the total over the bottom number: $\frac{6}{12}$

Step 3. Reduce the answer: $\frac{6\div 6}{12\div 6}=\frac{1}{2}$

FINDING A COMMON DENOMINATOR

Here are some ways of finding a common denominator when the largest denominator in an addition problem doesn't work:

A. Multiply the denominators together.

B. Go through the multiplication table of the largest denominator.

EXAMPLE 2:

$$\begin{array}{rr} (2\times 4) & \frac{2}{5}=\frac{8}{20} \\ (5\times 4) & \\ (3\times 5) & +\frac{3}{4}=\frac{15}{20} \\ (4\times 5) & \\ \hline & \frac{23}{20}=1\frac{3}{20} \end{array}$$

Step 1. Multiply the denominators.
5 x 4 = 20. 20 is the LCD

Step 2. Raise each fraction to 20ths

Step 3. Add as usual

Step 4. Change the answer to a mixed number.

EXAMPLE 3:

$$\begin{array}{r} \frac{2}{3}=\frac{8}{12} \\ \frac{5}{6}=\frac{10}{12} \\ +\frac{3}{4}=\frac{9}{12} \\ \hline \frac{27}{12}=2\frac{3}{12}=2\frac{1}{4} \end{array}$$

Step 1. Go through the multiplication table of the 6's
6 x 1 = 6, which cannot be divided by 4
6 x 2 = 12, which can be divided by 3 and 4

Step 2. Raise each fraction to 12ths

Step 3. Add

Step 4. Change the answer to a mixed number and reduce

Borrowing and Subtracting Fractions

In order to have a fraction to subtract from, you sometimes have to borrow from a whole number. Look at the examples carefully.

EXAMPLE 1. $9-6\frac{3}{5}$

Since there is nothing to subtract the $\frac{3}{5}$ from, you have to borrow.

$$\begin{array}{r} 9=8\frac{5}{5} \\ -6\frac{3}{5}=6\frac{3}{5} \\ \hline 2\frac{2}{5} \end{array}$$

Step 1. Borrow 1 from the 9 and change the 1 to 5ths because 5 is the LCD. $1=\frac{5}{5}$

Step 2. Subtract the top numbers and the whole numbers.

EXAMPLE 2. $12\frac{3}{7}-8\frac{6}{7}$

Since you cannot take $\frac{6}{7}$ from $\frac{3}{7}$, you have to borrow.

$$\begin{array}{l} 12\frac{3}{7}=11\frac{7}{7}+\frac{3}{7} \\ -8\frac{6}{7} \\ \hline \end{array}$$

Step 1. Borrow 1 from 12 and change the 1 to 7ths because 7 is the LCD. $1=\frac{7}{7}$

$$\begin{array}{l} 11\frac{7}{7}+\frac{3}{7}=11\frac{10}{7} \\ -8\frac{6}{7} \quad = \quad 8\frac{6}{7} \\ \hline \end{array}$$

Step 2. Add the $\frac{7}{7}$ to $\frac{3}{7}$. $\frac{7}{7}+\frac{3}{7}=\frac{10}{7}$

$$3\frac{4}{7}$$

Step 3. Subtract the top numbers and the whole numbers.

Canceling and Multiplying Fractions

Canceling is a shortcut in multiplication of fractions. It is just like reducing. It means dividing a top and a bottom number by a figure that goes evenly into both before actually multiplying. You don't have to cancel to get the right answer, but it makes the multiplication easier.

EXAMPLE: $\frac{10}{21}\times\frac{14}{25}$

$\frac{\overset{2}{\cancel{10}}}{21}\times\frac{14}{\underset{5}{\cancel{25}}}$

Step 1. Cancel 10 and 25 by 5.
10 ÷ 5 = 2 and 25 ÷ 5 = 5.
Cross out the 10 and the 25.

$\frac{\overset{2}{\cancel{10}}}{\underset{3}{\cancel{21}}}\times\frac{\overset{2}{\cancel{14}}}{\underset{5}{\cancel{25}}}=\frac{4}{15}$

Step 2. Cancel 14 and 21 by 7.
14 ÷ 7 = 2 and 21 ÷ 7 = 3.
Cross out the 14 and the 21.

Step 3. Multiply across by the new numbers.
2 x 2 = 4 and 3 x 5 = 15.

Multiplying with Mixed Numbers

To multiply with mixed numbers, change every mixed number to an improper fraction.

EXAMPLE: $4\frac{1}{2}\times\frac{5}{6}$

$\frac{\overset{3}{\cancel{9}}}{2}\times\frac{5}{\underset{2}{\cancel{6}}}=\frac{15}{4}=3\frac{3}{4}$

Step 1. Change $4\frac{1}{2}$ to an improper fraction.
$4\frac{1}{2}=\frac{9}{2}$

Step 2. Cancel 9 and 6 by 3

Step 3. Multiply across.

Step 4. Change the improper fraction to a mixed number.

Dividing Fractions by Fractions

To calculate the answer to any division of fractions problem, there are two rules to remember:

(1) Invert the fraction to the right of the division sign (the divisor). That is, turn the fraction upside down by writing the top number in the bottom position and the bottom number at the top.

In the problem ($\frac{1}{2} \div \frac{1}{8}$), invert the $\frac{1}{8}$ to become $\frac{8}{1}$.

(2) Change the division sign to a multiplication sign and follow the rules of multiplication.

Thus, the problem above becomes:

$$\frac{1}{2} \div \frac{1}{8} = \frac{1}{\cancel{2}_{1}} \times \frac{\overset{4}{\cancel{8}}}{1} = 4$$

In other words, the rules for multiplication and division of fractions are exactly the same as soon as you invert the fraction to the right of the division sign.

EXAMPLE: $\frac{3}{4} \div \frac{5}{8}$

$$\frac{3}{\cancel{4}_{1}} \times \frac{\overset{2}{\cancel{8}}}{5} = \frac{6}{5} = 1\frac{1}{5}$$

Step 1. Invert the fraction on the right $\left(\frac{5}{8}\right)$ to $\frac{8}{5}$ and change the ÷ sign to ×.

Step 2. Cancel 4 and 8 by 4.

Step 3. Multiply across.

Step 4. Change the improper fraction to a mixed number.

Percent Formula

Percent Problems may be written 3 ways.

1. 10% of 250 is what?
2. What % of 250 is 25?
3. 10% of what number is 25?

To convert sentences to math problems, use the following tips:

What means $\underline{?}$
Is means $=$
Of means $\times$ (multiply)

Sentences rewritten as math problems:

1. 10% of 250 is what? $10\% \times 250 = \underline{\quad}$
2. What % of 250 is 25 $\underline{\quad} \times 250 = 25$
3. 10 % of what number is 25? $10\% \times \underline{?} = 25$

To solve the problem, use the following hints:

1. When the word ***of*** **(×)** is the ***only*** word between two numbers, ***multiply.***

Example: 10% of 250 is what? $10\% \times 250 = \underline{2}$.
$.10 \times 250 =$ (convert % to decimal)

$$\begin{array}{r} 250 \\ \times .10 \\ \hline 000 \\ 250 \\ \hline 25.00 \end{array}$$

2. When ***is*** (÷) falls between two numbers, ***divide.***
The number closest to ***of*** goes *outside* the division box
The number closest to ***is*** goes *inside* the division box.

HINT:
Of and *outside* both begin with "o"
Is and *inside* both begin with "i".

Examples:

1. What percent of 250 is 25 ?

$$\_\_\_\ \% \times 250 = 25$$

$250\overline{)25}$ $250\overline{)25.00}$

2. 10 % of what number is 25 ?

$$10\% \times \_\_\_ = 25$$

$.10\overline{)25}$ (convert to decimal) $10\overline{)25.00}$

Practice Problems:

1. What is 15% of 900?
2. 15 is 5 % of what number?
3. What % of 8 is 4?
4. What is 36% of 125?
5. 3 is what percent of 12?
6. 20 is 25% of what number?

Answers: 1. 135 2. 300 3. 50% 4. 45 5. 25% 6. 80

INTRODUCTION TO ALGEBRA

ADDING SIGNED NUMBERS

In arithmetic, you learned that a positive sign (+) means addition and a negative sign (–) means subtraction. You now know that a positive sign can also indicate a positive number and a negative sign can indicate a negative number. To help avoid confusion, a signed number is often enclosed in parentheses:

+ 5 + (+6) means "positive 5 plus positive 6"
3 + (–4) means "positive 3 plus negative 4"
(–2) + (–3) means "negative 2 plus negative 3"

Adding signed numbers can also be thought of as adding number arrows. We will use number arrows to help learn the rules for adding signed numbers.

RULE 1: To add two or more numbers that have the same sign, combine the numbers and give the answer that sign.

RULE 2: To add a positive number and a negative number, find the difference between the two numbers and give the answer the sign of the larger number.

RULE 3: To add several signed numbers at one time, combine the positive numbers and the negative numbers separately, and then add the positive and negative totals.

EXAMPLE: Find the sum of +4, –9, –4, +8, +7, and –11.

Step 1. Combine the positive numbers and the negative numbers separately.

Positive Numbers	Negative Numbers
+4	–9
+8	–4
+7	–11
+19	–24

Step 2. Add the positive and negative totals by finding the difference between the two numbers. Give the answer the sign of the larger number.

Negative total	
Positive total	–24
Answer:	+19
	–5

SUBTRACTING SIGNED NUMBERS

RULE: To subtract signed numbers, change the sign of the number being subtracted, and then follow the same steps that you used in adding signed numbers.

MULTIPLYING SIGNED NUMBERS

In arithmetic, multiplication is indicated by the times sign, "×". In algebra, multiplication is indicated by a dot "•" or by parentheses ( ). Study the following examples illustrating the multiplication of signed numbers.

4 • 5 means "positive 4 times positive 5"
–3 • 6 means "negative 3 times positive 6"
4 (+7) means "positive 4 times positive 7"
(–9) (–8) means "negative 9 times negative 8"

Notice that parentheses may be placed around one or both signed numbers.

To multiply two signed numbers, follow these two rules:

RULE 1: **If the signs of the numbers are alike, multiply the numbers and give the answer a positive sign.**

RULE 2: **If the signs of the numbers are different, multiply the numbers and give the answer a negative sign.**

DIVIDING SIGNED NUMBERS

In algebra, you indicate division the same way that you do in arithmetic—with a fraction bar or with a division sign (÷). To avoid confusion, parentheses are sometimes placed around signed numbers when the division sign is used.

–15 + 5 means "negative 15 divided by positive 5"
(+12) ÷ (–6) means "positive 12 divided by negative 6"
(–18) ÷ (–3) means "negative 18 divided by negative 3"

The rules for dividing signed numbers are similar to the rules for multiplying signed numbers. To divide signed numbers, follow these two rules:

RULE 1: **If the signs of the numbers are alike, divide the numbers and give the answer a positive sign.**

RULE 2: **If the signs of the numbers are different, divide the numbers and give the answers a negative sign.**

EXAMPLE 1. Divide +20 by +4.

Step 1. Divide the numbers.
Step 2. Give the answer a sign. Since the signs are alike, the sign of the answer is positive.

$\frac{+20}{+4} = +5$ *or* $+20 \div (+4) = +5$

EXAMPLE 2. Divide –36 by –9.

Step 1. Divide the numbers.
Step 2. Give the answer a sign. Since the signs are alike, the answer is positive.

$\frac{-36}{-9} = +4$ *or* $(-36) \div (-9) = +4$

POWERS AND ROOTS

WHAT IS A POWER?

A *power* is the product of a number multiplied by itself one or more times. Four to the third power means "4 times 4 times 4."

A power is commonly written as a base and an exponent:

(4)(4)(4) is written 4^3 (exponent: 3; base: 4)

The 4 is called the *base.* The base is the number being multiplied. The 3 is called the *exponent.* The exponent tells how many times the base is written in the product.

EXAMPLE 1. Find the value of 4^4.

Step 1. Write out the terms for the base and exponent.

Step 2. Multiply the first two terms together: (4)(4) = 16

Step 3. Multiply the answer in Step 2 times the next number. (16) (4) = 64

Step 4. Continue multiplying until you have used all the terms. (64)(4)

Answer = 256

$4^4 = (4)(4)(4)(4)$
$= (16)(4)(4)$
$= (64)(4)$
$= 256$

MULTIPLICATION AND DIVISION OF POWERS

You may need to find the value of a product or a quotient of powers. In either case, first find the value of each power and then multiply or divide as indicated.

EXAMPLE 1. Find the value of the product $3^2 \cdot 2^4$.

Step 1. Find the value of each power.
$3^2 = 9$ and $2^4 = 16$

Step 2. Multiply the values found
$3^2 \cdot 2^4 = 9 \cdot 16 = 144$

Answer: 144

EXAMPLE 2. Find the value of the quotient $\frac{4^3}{2^2}$.

Step 1. Find the value of each power.
$4^3 = 64$ and $2^2 = 4$

Step 2. Divide 64 by 4.
$\frac{64}{4} = 16$

Answer: 16

WHAT IS A SQUARE ROOT?

Another important skill to learn is finding a *square root.* To find the square root of a number ask yourself, "What number times itself equals this number?"

For example, since $5^2 = 25$, 5 is the square root of 25.
The square root symbol is $\sqrt{\ }$. Thus, $5 = \sqrt{25}$.

EXAMPLE 1. Seven is the square root of what number?
Since $7^2 = 49$, 7 is the square root of 49.
Answer: **7** = $\sqrt{49}$

EXAMPLE 2. Find $\sqrt{36}$
Since $6^2 = 36$, the square root of 36 is 6.
Answer: $\sqrt{36} = 6$

Numbers that have whole number square roots are called *perfect squares.* Perfect squares are easily found by "squaring" whole numbers. The first fifteen perfect squares are shown on the table below. They are important to learn.

Table of Perfect Squares

$1^2 = 1$	$6^2 = 36$	$11^2 = 121$
$2^2 = 4$	$7^2 = 49$	$12^2 = 144$
$3^2 = 9$	$8^2 = 64$	$13^2 = 169$
$4^2 = 16$	$9^2 = 81$	$14^2 = 196$
$5^2 = 25$	$10^2 = 100$	$15^2 = 225$

EVALUATING FORMULAS

A *formula* is a mathematical rule. It is an algebraic expression that can be solved to find a particular quantity. For example, the formula that is used to find the area of a rectangle is: Area = length times width or A = *lw*.

In a formula, the quantity that you are trying to find is usually written to the left of the equal sign. The algebraic expression you need to solve is usually written to the right.

To find a value from a formula, substitute numbers for variables in the algebraic expression and do the arithmetic.

EXAMPLE: Using the formula A = *lw*, find the area of a rectangle when the length is 8 feet and the width is 5 feet.

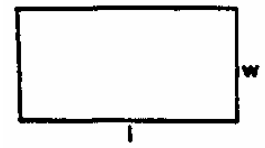
Substitute 8 for *l* and 5 for *w* in the formula A = *lw*
A = 8 • 5 = 40

Answer: A = 40 square feet

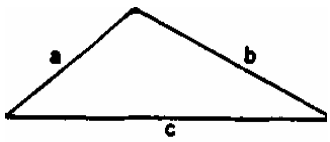
Note: In area problems, the answers will be in square feet, square inches, etc.
In volume problems, the answers will be in cubic feet, cubic inches, etc.

Evaluate each formula. (You don't need to know any geometry to solve these problems.) Write the answer on the line provided.

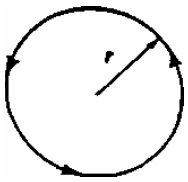
1. *Description:* Perimeter (distance around) of a rectangle
   Formula: P = 2(*l* + *w*)
   Variables: *l* = length
   w = width
   Find P when *l* = 7 feet
   w = 4 feet



2. *Description:* Perimeter of a triangle
   Formula: P = *a* + *b* + *c*
   Variables: *a, b, c* = sides of triangle
   Find P when *a* = 6 feet
   b = 9 feet
   c = 13 feet

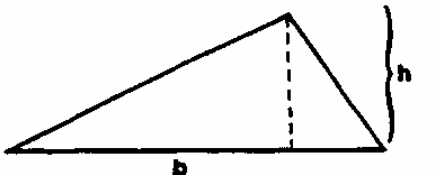


3. *Description:* Circumference (distance around) of a circle
   Formula: C = 2 π r, π = $\frac{22}{7}$
   Variables: *r* = radius
   Find C when *r* = 7 inches

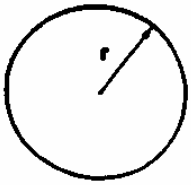


4. *Description:* Area (surface) of a rectangle
   Formula: $A = lw$
   Variables: l = length
   w = width
   Find A when l = 12 feet
   w = 7 feet

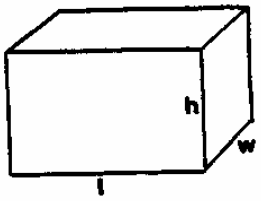
5. *Description:* Area of a triangle
   Formula: $A = \frac{1}{2}bh$
   Variables: b = base
   h = height
   Find A when b = 14 inches
   h = 6 inches



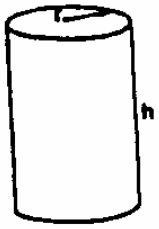
6. *Description:* Area of a circle
   Formula: $A = \pi r^2, \pi = \frac{22}{7}$
   Variables: r = radius
   Find A when r = 7 inches



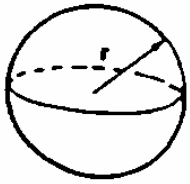
7. *Description:* Volume (space inside) of a rectangular solid
   Formula: $V = lwh$
   Variables: l = length
   w = width
   h = height
   Find V when l = 14 inches
   w = 5 inches
   h = 9 inches



8. *Description:* Volume of a cylinder
   Formula: $V = \pi r^2 h, \pi = \frac{22}{7}$
   Variables: r = radius
   h = height
   Find V when r = 2 feet
   h = 7 feet



9. *Description:* Volume of a sphere
   Formula: $V = \frac{4}{3}\pi r^3, \pi = \frac{22}{7}$
   Variables: r = radius
   Find V when r = 3 inches



Answer Key on Page 18

MATH REVIEW

The following math problems are similar to those you will find on the TABE battery. The answers are on the next page.

1. $293.08+14+2.719=$	**2.** $40-.387=$	**3.** $\begin{array}{r} 67.4 \\ \times .08 \\ \hline \end{array}$
4. $4.9\overline{)1.274}$	**5.** $\begin{array}{r} 5\frac{7}{8} \\ 4\frac{2}{3} \\ +9\frac{1}{2} \\ \hline \end{array}$	**6.** $\begin{array}{r} 23\frac{2}{9} \\ -18\frac{3}{4} \\ \hline \end{array}$
7. $\frac{5}{6}\times\frac{8}{15}\times\frac{3}{20}=$	**8.** $4\frac{2}{3}\div 1\frac{1}{9}=$	**9.** $\frac{3}{5}\div 15=$
10. **Find 25% of 80**	**11.** $(+4)^4=$	**12.** **Find the total:** $\begin{array}{r} +17 \\ -12 \\ +8 \\ +7 \\ -10 \\ \hline \end{array}$
13. $\sqrt{25}$	**14.** A school playground in the shape of a triangle has sides of 450 feet, 375 feet, and 574 feet. What is the distance around the playground?	**15.** How many feet of fence are needed to enclose a circular garden that has the radius of 28 feet?

ANSWER KEY (Page 15-16)

1. 22 ft.
2. 28 ft.
3. 44 in.
4. 84 sq. ft.
5. 42 sq. in.
6. 154 sq. in.
7. 630 cubic in.
8. 88 cubic ft.
9. $113\frac{1}{7}$ cubic in.

ANSWER KEY (Page 17)

1. 309.799
2. 39.613
3. 5.392
4. .26
5. $20\frac{1}{24}$
6. $4\frac{17}{36}$
7. $\frac{1}{15}$
8. $4\frac{1}{5}$
9. $\frac{1}{25}$
10. 20
11. 256
12. +10
13. 5
14. 1399 ft.
15. 176 ft.

Capitalization Rules

Capitalization 1. First word in a sentence

Begin the first word in even sentence with a capital letter.

Who won the eating contest?
That man ate 17 bananas in two minutes.

Capitalization 2. Personal pronoun *I*

Write the pronoun I with a capital letter.

At the last possible minute, I changed my mind

Capitalization 3. Names and initials of people

Almost always, begin each part of a person's name with a capital letter.

Toby Ohara Rosie Delancy
Sue Ellen Macmillan

Some names have more than one capital letter. Other names have pans that are not capitalized. Check the correct way to write each person's name. (Look in a reference book, or ask the person.)

Tim O'Hara Tony de la Cruz
Jeannie Mclntyre

Use a capital letter to write an initial that is pan of a person's name.

B. J. Gallardo J. Kelly Hunt
John F. Kennedy

Capitalization 4. Titles of people

Begin the title before a person's name with a capital letter.

***Mr**. Sam Yee **Captain** Cook*
***Dr**. Watson **Governor** Maxine Smart*

Do not use a capital letter if this kind of word is not used before a person's name.

*Did you call the **doctor**?*
*Who will he our state's next **governor**?*

Capitalization 5. Names of relatives

A word like **grandma** or **uncle** may be used as a person's name or as part of a person's name. Begin this kind of word with a capital letter.

*Only **Dad** and **Aunt Ellie** understand it.*

Usually, if a possessive pronoun comes before a word like **grandma** or **uncle**, do not begin that word with a capital letter.

*Only **my dad** and **my aunt** understand it.*

Capitalization 6. Names of days

Begin the name of a day with a capital letter.

*Most people don't have to work on **Saturday** or **Sunday**.*

Capitalization 7. Names of months

Begin the name of a month with a capital letter.

*At the equator, the hottest months are **March** and **September**.*

Capitalization 8. Names of holidays

Begin each important word in the name of a holiday with a capital letter. Words like **the** and **of** do not begin with capital letters.

*They usually have a picnic on the **Fourth** of **July** and a fancy dinner party on **Thanksgiving**.*

Capitalization 9. Names of streets and highways

Begin each word in the name of a street or highway with a capital letter.

*Why is **Lombard Street** known as the most crooked road in the world?*

Capitalization 10. Names of cities and towns

Begin each word in the name of a city or town with a capital letter.

*In 1957, the Dodgers moved from **Brooklyn** to **Los Angeles**.*

Capitalization 11. Names of states, countries, and continents

Begin each word in the name of a state, country, or continent with a capital letter.

*The story was set in **Nevada**, but they shot the film in **Mexico**.*
*There are very high mountain peaks in **Antarctica**.*

Capitalization 12. Names of mountains and bodies of water

Begin each word in the name of a mountain, river, lake, or ocean with a capital letter.

Amelia Earhart's plane was lost somewhere over the Pacific Ocean.

Capitalization 13. Abbreviations

If the word would begin with a capital letter, begin the abbreviation with a capital letter.

*On the scrap of paper, the victim had written, "**Wed**.-**Dr**.Lau."*

Capitalization 14. Titles of works

Use a capital letter to begin the first word, the last word, and every main word in the title of a work. The words **the**, **a**, and **an** do not begin with capital letters except at the beginning of a title. Coordinating conjunctions and prepositions also do not begin with capital letters. (See Grammar 45 and Grammar 48.)

*Archie and Edith were the main characters in the television series **All in the Family**.*

Capitalization 15. Other proper nouns

Begin each major word in a proper noun with a capital letter. A proper noun is the special name of a particular person, place, or thing. (See Grammar 13.) Usually, the words **the**, **a**, and **an**, coordinating conjunctions, and prepositions do not begin with capital letters. (See Grammar 45 and Grammar 48.)

*Jerry rushed to the **Burger King** and ordered three **Whoppers**.*

Capitalization 16. Proper adjectives

Begin each word in a proper adjective with a capital letter. A proper adjective is an adjective that is formed from a proper noun. (See Grammar 37.)

*That **American** author writes about **English** detectives.*

*She loves **Alfred Hitchcock** movies.*

Capitalization 17. Direct quotations

Begin the first word in a direct quotation with a capital letter. (See Punctuation 14-16.)

*Dr. Pavlik said, "**There** are simply no teeth in the denture law."*

If the words that tell who is speaking come in the middle of a quoted sentence, do not begin the second part of the quotation with a capital letter.

*"**There** are simply no teeth," said Dr. Pavlik, "in the denture law."*

Capitalization 18. Greetings and closings in letters

Begin the first word in the greeting of a letter with a capital letter.

***Dear** Mr. Lincoln:* ***Dear** Uncle Abe,*

Begin the first or only word in the closing of a letter with a capital letter.

***Sincerely** yours,* ***Very** truly yours,*
***Love**,*

Capitalization 19. Outlines

In an outline, begin the first word of each heading with a capital letter.

II. Houses by mail order
A. First sold by Sears, Roebuck in 1903
1. Build-it-yourself kits
2. Included all materials and instructions
B. Other companies now in business

In an outline, use capital Roman numerals to label main ideas. Use capital letters to label supporting ideas. For ideas under supporting ideas, use Arabic numerals. For details, use small letters. Use a period after each Roman numeral, capital letter, Arabic numeral, or small letter.

I. Miner George Warren
A. Risked his share of Copper Queen mine in bet
1. Bet on race against George Atkins
a. Warren on foot
b. Atkins on horseback
2. Lost property worth $20 million

Punctuation Rules

Punctuation 1. Periods, question marks, and exclamation points at the ends of sentences

Use a period, a question mark, or an exclamation point at the end of every sentence. Do not use more than one of these marks at the end of a sentence. For example, do not use both a question mark and an exclamation point, or do not use two exclamation points.

Use a period at the end of a declarative sentence (a sentence that makes a statement).

A hockey player must be able to skate backward at top speed.

Also use a period at the end of an imperative sentence (a sentence that gives a command).

Keep your eye on the puck.

Use a question mark at the end of an interrogative sentence (a sentence that asks a question).

Who is the goalie for their team?

Use an exclamation point at the end of an exclamatory sentence (a sentence that expresses excitement).

That was a terrific block!

Punctuation 2. Periods with abbreviations

Use a period at the end of each pan of an abbreviation.

Most titles used before people's names are abbreviations. These abbreviations may be used in formal writing. (Miss is not an abbreviation and does not end with a period.)

***Dr**. Blackball* ***Mr**. Bill Tilden*

***Ms**. Maureen Connolly*

Most other abbreviations may be used in addresses, notes, and informal writing. They should not be used in formal writing.

Lake View ***Blvd**.* ***Mon**. and* ***Thurs**.*

Fifth ***Ave**.* ***Dec**. 24*

Do not use periods in the abbreviations of names of government agencies, labor unions, and certain other organizations.

Tomorrow night ***CBS** will broadcast a special program about the* ***FBI**.*

Do not use periods after two-letter state abbreviations in addresses. This special kind of abbreviation has two capital letters and no period. Use these abbreviations only in addresses.

Their new address is 1887 West Third Street, Los Angeles, ***CA** 90048.*

Punctuation 3. Periods after initials

Use a period after an initial that is part of a person's name.

Chester ***A**. Arthur* ***C**. **C**. Pyle*

Susan ***B**. Anthony*

Punctuation 4. Commas in dates

Use a comma between the number of the day and the number of the year in a date.

Hank Aaron hit his record-breaking home run on ***April 8, 1974**.*

If the date does not come at the end of a sentence, use another comma after the number of the year.

***April 8, 1974**, was an exciting day for Hank Aaron s fans.*

Do not use a comma in a date that has only the name of a month and the number of a year.

Aaron hit his final home run in ***July 1976**.*

Do not use a comma in a date that has only the name of a month and the number of a day.

***April 8** is the anniversary of Aaron s record-breaking home run.*

Punctuation 5. Commas in place names

Use a comma between the name of a city or town and the name of a state or country.

The world's largest chocolate factory is in ***Hershey, Pennsylvania**.*

If the two names do not come at the end of a sentence, use another comma after the name of the state or country.

***Hershey, Pennsylvania,** is the home of the world's largest chocolate factory.*

Punctuation 6. Commas in compound sentences

Use a comma before the conjunction—**and**, **but**, or **or**—in a compound sentence. (See Grammar 9 and Grammar 45.)

*Eighteen people tried**, but** no one succeeded.*

Punctuation 7. Commas in series

Three or more words or groups of words used the same way in a sentence form a series. Use commas to separate the words or word groups in a series.

***Jamie**, **Mitch**, **Kim**, **Lou**, **and Pablo** entered the contest.*

*Each contestant **swam one mile**, **bicycled two miles**, and **ran five miles**.*

Punctuation 8. Commas after introductory phrases and clauses

Use a comma after a phrase that comes before the subject of a sentence. A phrase is a group of words that usually functions as an adjective or an adverb. One kind of phrase is a prepositional phrase. (See Grammar 49.)

In the old dresser, Penny found the diamonds.

If the entire predicate comes before the subject of the sentence, do not use a comma. (See Grammar 3).

In the old dresser lay the diamonds.

Use a comma after an adverb clause at the beginning of a sentence. (See Grammar 46.)

When he was first named hockey's most valuable player, Wayne Gretzky was only 18 years old.

Punctuation 9. Commas with nouns of address

Use a comma after a noun of address at the beginning of a sentence. (See Grammar 15.)

Fernando, that was a terrific pitch!

Use a comma before a noun of address at the end of a sentence.

That was a terrific pitch, Fernando!

If a noun of address comes in the middle of a sentence, use one comma before the noun and another comma after it.

That, Fernando, was a terrific pitch!

Punctuation 10. Commas with appositives

Use a comma before an appositive at the end of a sentence. (See Grammar 16.)

This costume was worn by George Reeves, Hollywood's first Superman.

If an appositive comes in the middle of a sentence. use one comma before the appositive and another comma after it.

George Reeves, Hollywood's first Superman, wore this costume.

Punctuation 11. Commas or exclamation points with interjections

Usually, use a comma after an interjection. (See Grammar 47.)

***Well**, we should probably think about it.*

Use.an exclamation point after an interjection that expresses excitement.

***Wow**! That's a terrific idea!*

Punctuation 12. Commas after greetings in friendly letters

Use a comma after the greeting in a friendly letter.

Dear John, Dear Uncle Theodore,

Punctuation 13. Commas after closings in friendly letters and business letters

Use a comma after the closing in a letter.

Love, Yours sincerely,

Punctuation 14. Quotation marks with direct quotations

A direct quotation tells the exact words a person said. Use quotation marks at the beginning and at the end of each pan of a direct quotation.

"Look!" cried Tina. "That cat is smiling!"

"Of course." said Tom. "It's a Cheshire cat."

Punctuation 15. Commas with direct quotations

Usually, use a comma to separate the words of a direct quotation from the words that tell who is speaking. (See Punctuation 16.)

Jay asked, "Who won the game last night?"

"The Cubs won it," said Linda, "in 14 innings."

Punctuation 16. End punctuation with direct quotations

At the end of a direct quotation, use a period, a comma, a question mark, or an exclamation point before the closing quotation marks. If the direct quotation makes a statement or gives a command at the end of a sentence, use a period.

Linda said, "The Cubs won last night's game."
Jay said, "Tell us about the game."

If the direct quotation makes a statement or gives a command before the end of a sentence, use a comma,

"The Cubs won last night's game," said Linda.
"Tell us about the game," Jay said.

If the direct quotation asks a question, use a question mark.

"Was it an exciting game?" asked Jay.

If the direct quotation expresses excitement, use an exclamation point

Linda yelled, "It was great!"

Punctuation 17. Quotation marks with titles of works

Use quotation marks around the title of a story, poem. song, essay, or chapter.

*"**Happy Birthday to You"** is the most popular song in the world.*

If a period or a comma comes after the title, put the period or comma inside the closing quotation mark.

*The most popular song in the world is "**Happy Birthday to You.**"*

Punctuation 18. Underlines with titles of works

Underline the title of a book, play, magazine, movie, television series, or newspaper.

*One of the best movies about baseball was **The Natural**.*

Punctuation 19. Apostrophes in contractions

Use an apostrophe in place of the missing letter or letters in a contraction.

is *not—isn't* *Mel is—Mel's* *I will—I'II*

Punctuation 20. Apostrophes in possessive nouns

Use an apostrophe and **s** to write the possessive form of a singular noun. (See Grammar 14.)

This cage belongs to one bird. It is the bird's cage.
This cage belongs to Tweeter. It is Tweeter's cage.

Use only an apostrophe to write the possessive form of a plural noun that ends in **s**.

This is a club for boys. It is a boys' club.

Use an apostrophe and **s** to write the possessive form of a plural noun that does not end in s.

This is a club for men. It is a men's club.

Punctuation 21. Colons after greetings in business letters

Use a colon after the greeting in a business letter.

Dear Mrs. Huan: *Dear Sir or Madam:*
Dear Senator Rayburn:

Punctuation 22. Colons in expressions of time

When you use numerals to write time, use a colon between the hour and the minutes.

5:45 *p.m.* *9:00 a.m.* *12:17 p.m.*

Punctuation 23. Hyphens in numbers and fractions

Use a hyphen in a compound number from twenty-one to ninety-nine.

thirty-seven *fifty-eight* *seventy-three*

Use a hyphen in a fraction.

one-quarter *two-thirds* *seven-eighths*