

Algebra 2 - Chapter 1  
YOU CAN...

Without Calculator:

\* Using the order of operations, evaluate an expression

1.)  $20 \div (5-3) + 5^2(3)$                       2.)  $18 - (5 - [34 - (17 - 1)])$

\* Evaluate an expression requiring substitutions

For #3-5, evaluate each expression if  $a = \frac{2}{5}$ ,  $b = -3$ ,  $c = 0.5$ , and  $d = 6$ .

3.)  $b^4 - d$

4.)  $\frac{5ad}{b}$

5.)  $\frac{2b-15a}{3c}$

\* Simplify an expression

6.)  $2m + 7n - 6m - 5n$                       7.)  $2(5x + 4y) - 3(x + 8y)$

\* Solve an equation with one variable

8.)  $3w + 14 = 7w + 2$                       9.)  $5y + 4 = 2(y - 4)$

10.)  $4(a + 5) - 2(a + 6) = 3$

\* Solve an absolute value equation

11.)  $|x + 7| = 3x - 5$

12.)  $4|3x + 4| = 4x + 8$

\* Solve an inequality with one variable & Graph the solution of an inequality with one variable

13.)  $\frac{n}{12} + 5 \leq 7$

14.)  $3(6 - 5a) < 12a - 36$

\* Solve compound and absolute value inequalities

15.)  $|2y - 9| \leq 27$

16.)  $||3b + 1|| > 1$

\* Tell which sets of numbers a number belongs to

17.)  $-\frac{2}{9}$

18.)  $\sqrt{19}$

19.)  $\frac{12}{2}$

With a Calculator:

\* Solve a formula for a variable

20.)  $\frac{a-4b^2}{2c} = d$  for  $a$                       21.)  $A = p + prt$  for  $p$

\* Solve a word problem using "good" algebraic form. Define the variable, write the equation or inequality, show a well-organized solution, explain the answer

22.) Don is building a fence around a rectangular plot and wants the perimeter to be between 17 and 20 yards. The width of the plot is 5 yards. Write and solve a compound inequality to describe the range of possible measures for the length of the fence.

For #23-24, write an algebraic expression to represent each verbal expression.

(Additional examples: pg. 23 #17-22)

23.) The square of the quotient of a number and 4

24.) The cube of the difference of a number and 7

25.) Bobby's mother is 8 more than twice his age. His father is three years older than his mother. If the three family members have lived a total of 94 years, how old is each family member.

26.) The PTSA has raised \$1800 to help pay for a trip to an amusement park. They ask that there be one adult for every five students attending. Adult tickets are \$45 and student tickets are \$30. If the group wants to take 50 students, how much will each student need to pay so that adults agreeing to chaperone pay nothing?

Have You:

\* Reviewed your notes and practiced the vocabulary

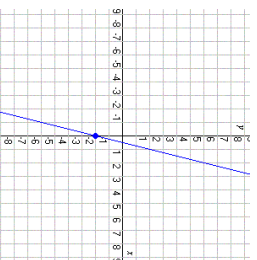
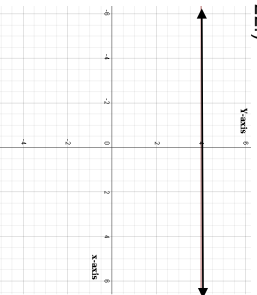
\* Completed the practice tests in the book

\* Practiced additional problems

\* Investigated the online resources at [www.ca.algebra2.com](http://www.ca.algebra2.com)

You Can (WITHOUT A CALCULATOR)....

- FIND THE DOMAIN AND RANGE OF A RELATION & DETERMINE IF A RELATION IS A FUNCTION
  - 1.)  $\{(6, 3) (2, 1) (-2, 3) (2, 4)\}$                       2.)  $\{(-5, 2) (2, 4) (1, 1) (-5, -2)\}$
- DETERMINE IF A RELATION IS DISCRETE OR CONTINUOUS & TELL IF A GRAPH IS A FUNCTION & TELL IF A GRAPH IS LINEAR
  - 3.) - 5.) Pg. 62 #18-20
- FIND THE VALUE OF A FUNCTION AT A NUMBER AND AT AN EXPRESSION
  - 6.) Find the value of  $f(6)$  if  $f(x)=5x-9$ .                      7.) Find the value of  $f(-2)$  if  $f(x)=5x-9$ .
- FIND THE SLOPE, X-INTERCEPT AND Y-INTERCEPT OF A LINEAR EQUATION WRITTEN IN STANDARD FORM AND IN FUNCTION FORM
  - 8.)  $-\frac{1}{5}y = x + 4$     9.)  $6x = -12y + 48$
- FIND THE SLOPE OF THE LINE GIVEN TWO POINTS
  - 10.)  $(3, -8)$  and  $(-3, 2)$
- WRITE LINEAR EQUATIONS GIVEN VARIOUS INFORMATION
  - 11.)  $(0, 1), m=2$     12.)  $(-5, 2), m = -\frac{1}{4}$     13.)  $(-6, 9), \frac{3}{4}$
  - 14.) Passes through  $(-1, 2)$ , perpendicular to a line whose slope is  $\frac{1}{2}$
  - 15.) Passes through  $(3, 2)$ , perpendicular to the graph of  $4x - 3y = 12$
- GRAPH LINEAR EQUATIONS, ABSOLUTE VALUE EQUATIONS, LINEAR INEQUALITIES AND ABSOLUTE VALUE INEQUALITIES
  - 16.)  $-\frac{1}{5}y = x + 4$     17.)  $6x = -12y + 48$     18.)  $x > y - 1$
  - 19.)  $2x + y \geq 3$     20.)  $g(x) = 3|x - 2| + 3$     21.)  $f(x) = |2x - 2| - 4$
- IDENTIFY THE SLOPE AND WRITE THE EQUATION GIVEN THE GRAPH OF A LINE
  - 22.)    23.)



You Can (WITH A CALCULATOR)...

- MAKE A SCATTER PLOT
- GIVEN THE DATA, DRAW A LINE OF FIT TO THE DATA AND WRITE THE EQUATION OF THIS LINE
- USING A LINE OF FIT, MAKE A PREDICTION
- GIVEN DATA, FIND THE REGRESSION EQUATION (By Calculator)
  - 24.) - 26.) Pg. 894 Lesson 2.5 #1-3 (Can you graph and do everything by hand as well?)

HAVE YOU:

- \* Reviewed your notes and practiced the vocabulary
- \* Completed the practice tests in the book
- \* Practiced additional problems
- \* Investigated the online resources at [www.ca.algebra2.com](http://www.ca.algebra2.com)

**2-3 Enrichment*****The Increase in Greenhouse Gases***

The atmosphere is composed of about 50% carbon dioxide,  $\text{CO}_2$ . The levels of carbon dioxide are increasing due to increase fuel consumption and housing and commercial development. The concentration of a compound is measured in parts per million (ppm). For example, if there were 500  $\text{CO}_2$  molecules out of one million air particles, then the  $\text{CO}_2$  level would be 500 ppm.

1. In 1965, the concentration of  $\text{CO}_2$  was 320 ppm. In 2004, the concentration was 378 ppm. Determine the rate at which  $\text{CO}_2$  increased in ppm per year.
2. Carbon dioxide concentration is related to human consumption of fossil fuels and the decrease of trees due to development, therefore an increase in human population will result in an increase in carbon dioxide. In 1980 the U.S. population was 225 million. The 2000 census reported 281 million. At what rate is the population increasing per year? What do you estimate the U.S. population to be today?
3. Use the figures from Exercises 1 and 2 to determine about how much  $\text{CO}_2$  is “produced” per million people. Is it possible to reduce the concentration of carbon dioxide in the atmosphere when the human population is increasing? Explain.
4. The greenhouse effect is heat “trapped” by gases such as carbon dioxide, which acts as a “blanket” for the earth. Higher concentration levels of carbon dioxide amplify the greenhouse effect. Thus, global temperature is related to the concentration of  $\text{CO}_2$ . Records indicate that the increase in global temperature since 1940 is 0.02 degrees Fahrenheit per year. Each degree rise in temperature causes ocean levels to rise one-half a foot. Use your data to determine in what year the ocean level will rise 2 feet. What impact will this have on coastal regions of the United States?

**Algebra 2CP**  
**Chapter 3 (Graphing)**

**Can You (Without a calculator)...**

❖ **Graph and solve a system of equations.**

1.  $3x + 2y = 12$   
 $x - 2y = 4$

2.  $8x - 10y = 7$   
 $4x - 5y = 7$

3.  $y - 2x = 8$   
 $y = \frac{1}{2}x - 4$

❖ **Graph and solve a system of inequalities.**

4.  $y < x + 1$   
 $x > 5$

5.  $y \leq x + 4$   
 $2y \geq x - 3$

6.  $y \leq x + 2$   
 $x + 2y \geq -8$

❖ **Given the graph of a feasible region and the system of inequalities, determine the vertices of the feasible region and find the maximum and minimum values of a given function.**

7.  $y \geq x - 3$   
 $y \leq 6 - 2x$   
 $2x + y \geq -3$   
 $f(x, y) = 3x + 4y$

8.  $y \leq x + 2$   
 $y \leq 11 - 2x$   
 $2x + y \geq -7$   
 $f(x, y) = 4x - 3y$

**Algebra 2CP**  
**Chapter 3 (Algebraic Methods)**

**Can You (Without a calculator)...**

❖ **Given a system of equations determine the number of solutions and be able to justify your answer.**

1.  $20y + 13x = 10$   
 $10y + 6.5x = 5$

2.  $2x - 3y = 9$   
 $4x + 2y = -22$

3.  $2x - 6y = 11$   
 $4x - 12y = 21$

❖ **Solve a system of equations involving two or three variables using substitution or elimination.**

4.  $x + y = 5$   
 $2x - y = 4$

5.  $3x - 5y = -13$   
 $4x + 2y = 0$

$2a + b - c = 5$   
6.  $a - b + 3c = 9$   
 $3a - 6c = 6$

7. Last year the volleyball team paid \$5 per pair for socks and \$17 per pair for shorts on a total purchase of \$315. This year they spent \$342 to buy the same number of pairs of socks and shorts because the socks now cost \$6 a pair and the shorts cost \$18. How many pairs of socks and shorts did the team buy each year?
8. There are 49,000 seats in a sports stadium. Tickets for the seats in the upper level sell for \$25, the ones in the middle level cost \$30, and the ones in the bottom level are \$35 each. The number of seats in the middle and bottom levels together equals the number of seats in the upper level. When all of the seats are sold for an event, the total revenue is \$1,419,500. How many seats are there in each level?