This document provides computer programs, written in BASIC PL/1, for presenting fundamental or remedial college chemistry students with chemical problems in a computer-assisted instructional program. Programs include instructions, a sample run, and 14 separate practice sessions covering: mathematical operations, using decimals, solving proportions, metric conversion, using metric word problems, balancing chemical equations, stoichiometry, gas laws, and solutions.
PROGRAMS FOR 
FUNDAMENTALS OF CHEMISTRY

DEVELOPED BY:

DR. J. GALLARDO
MR. S. DELGADO

HOSTOS COMM. COLLEGE

ANHEDONI PAPADOPOULOS

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MAY, 1977

GRANT # 00454

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**COMMENTS**

I - ALL PROGRAMS IN THIS PACKAGE ARE TO BE USED BY ANY STUDENT TAKING A FUNDAMENTALS OR REMEDIAL COURSE IN CHEMISTRY

II - ALL TERMINALS SHOULD BE SET WITH THE FOLLOWING CHARACTERISTICS USING THE 'TTYSET' COMMANDS:

   A - WIDTH 81

   B - LC OUTPUT

III - ALL PROBLEMS HAVE BEEN WRITTEN IN BASIC PLUS LANGUAGE. THESE PROGRAMS CANNOT BE RUN ON A COMPUTER THAT DOESN'T HAVE A BASIC PLUS COMPILER. IT SHOULD BE NOTED THAT IN ALMOST ALL CASES, ANY DATA GIVEN IS RANDOMIZED. THEREFORE NO TWO RUNS OF THE SAME PROGRAM WILL CONTAIN THE SAME DATA.

IV - EACH PROGRAM, WHEN RUN, WILL PRINT 'CODE #:'. THIS IS FOR THE INSTRUCTORS USE ONLY. THE POSSIBLE RESPONSES TO THIS ARE:

   A - PRESS #1 FOLLOWED BY <CR>; THIS WILL CAUSE THE COMPUTER TO PRINT OUT JUST THE PROBLEMS CONTAINED WITHIN THE PROGRAM. THIS MEANS THAT THE COMPUTER WILL NOT WAIT FOR THE STUDENT'S ANSWER. FOLLOWING THE PROBLEMS THE CORRECT ANSWERS WILL BE PRINTED OUT. THIS IS INTENDED FOR THE INSTRUCTORS USE ONLY. OUR AIM WAS THAT THESE QUESTIONS COULD BE USED AS A TEST OR HOMEWORK ASSIGNMENTS.

   B - WHEN ANY OTHER CHARACTER IS PRESSED FOLLOWED BY THE <CR> ALL PROGRAMS WILL FOLLOW THE SAME PATTERN. THAT IS, IT WILL ASK FOR THE STUDENT'S NAME AND ID BEFORE PROCEEDING TO THE PROBLEMS THEMSELVES. THE PROGRAM WILL NOW BE IN A 'PRACTICE SESSION' MODE (SEE V).

V - PRACTICE SESSION MODE

   A - WHEN THE PROGRAM IS RUN IN THIS MODE THE STUDENT WILL BE ASKED TO SOLVE A SET OF PROBLEMS.
B - THERE IS NO SET TIME LIMIT FOR THE STUDENT TO COMPLETE THE SESSION OR TO SOLVE THE PROBLEMS. HOWEVER, THE STUDENTS ARE GIVEN TWO CHANCES TO ANSWER A QUESTION CORRECTLY. AFTER THE SECOND INCORRECT ANSWER THE COMPUTER WILL PRINT OUT THE CORRECT NUMERICAL ANSWER BUT WILL NOT SHOW THE STEPS USED TO ARRIVE AT THAT ANSWER.

C - THE COMPUTER WILL KEEP A RECORD OF ALL CORRECT ANSWERS BUT WILL NOT INDICATE IF THE CORRECT ANSWER WAS OBTAINED IN THE FIRST OR SECOND TRY.

D - AT THE END OF A SESSION THE COMPUTER WILL PRINT OUT ALL OF THE CORRECT ANSWERS AND THE STUDENT ANSWERS.

VI - WHEN WE STARTED THIS TASK OF WRITING PROGRAMS TO BE USED AS PRACTICE SESSIONS BY THE STUDENTS IN SEPT. 1976, WE DID NOT HAVE ANY KNOWLEDGE OF COMPUTER PROGRAMMING.

THIS CAN BE SEEN IN THE PROGRAMS THEMSELVES, THAT HAVE A LOW DEGREE OF SOPHISTICATION. AS TIME PROGRESSED, AND WE LEARNED MORE TECHNIQUES IN PROGRAMMING, THE SOPHISTICATION OF THE PROGRAMS INCREASED, ALTHOUGH WE THOUGHT THAT THE STRUCTURE OF THE PROGRAMS SHOULD BE KEPT STRAIGHT FORWARD AND SIMPLE ENOUGH SO ANYBODY WITH SOME KNOWLEDGE OF BASIC PLUS LANGUAGE COULD FOLLOW WHAT WAS DONE. OUR AIM WAS TO LEARN ENOUGH COMPUTING KNOWLEDGE TO BE ABLE TO DEVELOP PROGRAMS THAT STUDENTS COULD BENEFIT FROM.

VII - FINAL COMMENTS:

THIS PACKAGE WAS DEVELOPED BY DR. JULIO GALLARDO AND MR. STEVEN DELGADO OF THE PHYSICAL SCIENCE DEPT. OF HOSTOS COMMUNITY COLLEGE OF C.U.N.Y.

IN OUR LAST EDITING WE HAVE TRIED TO ERASE ALL MISTAKES, BUT AS USUALLY HAPPENS, MANY OF THEM MAY HAVE ESCAPED OUR SCRUTINY.

ANY COMMENTS, SUGGESTIONS OR CORRECTIONS THAT YOU MAY HAVE ABOUT THIS PACKAGE MAY BE SENT TO:

DR. JULIO GALLARDO

OR

MR. STEVEN DELGADO
PHYSICAL SCIENCE DEPT.
HOSTOS COMMUNITY COLLEGE
475 GRAND CONCOURSE
BRONX, NEW YORK 10451
FINALLY WE WOULD LIKE TO THANK DR. A. MURIEL FOR GIVING US THE CHANCE TO BE PARTICIPANTS IN THIS PROJECT.
## FILE NAME
### INST
#### DESCRIPTION
**INSTRUCTIONS FOR USING ALL PROGRAMS IN THIS PACKAGE. FROM HERE A STUDENT CAN CHOOSE ANY TOPIC HE WISHES TO DO.**

**CE008**
A PRACTICE SESSION USING INTERGERS WITH VARIOUS MATHEMATICAL OPERATIONS (ADD., SUB., MULT., AND DIV.). THIS SESSION CONSISTS OF 12 PROBLEMS.

**CE0108**
A PRACTICE SESSION USING DECIMALS WITH VARIOUS MATHEMATICAL OPERATIONS. THIS SESSION HAS 15 PROBLEMS.

**CE0208**
A PRACTICE SESSION IN SOLVING PROPORTIONS AND PERCENTAGE PROBLEMS. THIS SESSION HAS 16 PROBLEMS.

**CE0308**
A PRACTICE SESSION IN CONVERTING FROM THE METRIC SYSTEM TO THE ENGLISH SYSTEM AND VISA VERSA. THIS SESSION HAS 15 PROBLEMS.

**CE0408**
A PRACTICE SESSION USING THE METRIC SYSTEM IN WORD PROBLEMS. THIS SESSION HAS 10 QUESTIONS.

**CE0508**
A PRACTICE SESSION ON WORD PROBLEMS, USING ALL OF THE ABOVE INFORMATION. HERE A STUDENT CAN CHOOSE THE NUMBER OF PROBLEMS HE WISHES TO DO. THIS SESSION HAS 14 QUESTIONS.

**CE0608**
 THESE ARE THE INSTRUCTIONS TO BE USED BEFORE THE STUDENT ANSWERS THE QUESTIONS ON BALANCING CHEMICAL EQUATIONS. THIS PROGRAM RANDOMLY CHAINS TO ANY ONE OF 4 PROGRAMS ON BALANCING EQUATIONS (EQUAT 2, 3, 4 OR 5).

**EQUAT 2-5**
 THESE ARE THE PROGRAMS CHAINED TO CE0608. THEY EACH HAVE 10 DIFFERENT EQUATIONS. THEY CAN EACH RUN ON AN INDIVIDUAL BASIS BUT ARE NOT CHAINED TO THE 'INST' FILE.
**FILE NAME**

***CHE708***

**DESCRIPTION**

**********

A PRACTICE SESSION ON STOICHIOMETRY, ASKING THE STUDENT TO ANSWER 5 QUESTIONS WHICH HAVE A LOW DEGREE OF DIFFICULTY. FROM HERE THE STUDENT CAN CHOOSE TO CONTINUE TO 10 MORE QUESTIONS (CHE718) WHICH ARE OF GREATER DIFFICULTY, OR END THE SESSION.

**CHE718**

**********

THIS IS A CONTINUATION OF CHE708 BUT WITH HARDER PROBLEMS. THIS PROGRAM CAN RUN ON ITS OWN BUT IS NOT CHAINED TO THE 'INST' FILE.

**CHE808**

**********

A PRACTICE SESSION ON THE GAS LAWS, CONTAINING 15 QUESTIONS OF MODERATE DIFFICULTY. THE STUDENT CAN CHOOSE TO DO 5, 10 OR ALL 15 PROBLEMS.

**CHE908**

**********

A PRACTICE SESSION ON SOLUTIONS, CONSISTING OF 15 QUESTIONS, DEALING WITH MOLALITY AND PERCENT SOLUTION. THE STUDENT CAN CHOOSE TO DO 5, 10 OR ALL 15 PROBLEMS.

**CHE018**

**********

A PRACTICE SESSION ON SOLUTIONS (II), CONSISTING OF 15 QUESTIONS, DEALING WITH NORMALITY AND MOLARITY. THE STUDENT CAN CHOOSE 5, 10 OR ALL 15 QUESTIONS TO ANSWER.

**CHE028**

**********

A PRACTICE SESSION ON THE GAS LAWS (II), CONSISTING OF 15 QUESTIONS OF GREATER DIFFICULTY THEN CHE808. A STUDENT CAN CHOOSE 5, 10 OR 15 QUESTIONS OR CARRY ON TO AN ADDITIONAL 5, 10 OR 15 QUESTIONS IN CHE038.

**CHE038**

**********

THIS IS A CONTINUATION OF CHE028. THIS PROGRAM IS CHAINED TO CHE028. EACH OF THESE PROGRAMS ARE GEARED TO THE GENERAL CHEMISTRY STUDENT, BUT MAY BE USED BY THE STUDENT TAKING A FUNDAMENTALS OF CHEMISTRY COURSE. THIS PROGRAM IS NOT CHAINED TO THE 'INST' FILE.

**SAMPLE**

**********

THIS IS A SAMPLE RUN OF CHE508. IT WILL SHOW HOW THE PROGRAM WILL RUN AND ALSO HOW IT CAN FUNCTION AS A SAMPLE TEST FOR THE INSTRUCTOR TO USE.
REM - THIS PROGRAM SHOULD RUN WITH THE TERMINAL SET AT "WIDTH 81".
10 THIS PROGRAM PRINTS INSTRUCTIONS.
11 THIS PROGRAM HAS BEEN PREPARED BY DR. JULIO GALLARDO AND MR. STEVEN
12 DEAN OF THE PHYSICAL SCIENCE DEPT. OF HOSTOS COMMUNITY COLLEGE, AND IS
13 BEING SUBSIDIZED BY A GRANT FROM THE NATIONAL SCIENCE FOUNDATION.
14
15 PRINT "THE FOLLOWING PRACTICE SESSIONS HAVE BEEN PREPARED FOR YOUR USE.
16 IF YOU START, PLEASE READ ALL INSTRUCTIONS CAREFULLY. MAKE SURE
17 YOU UNDERSTAND THEM COMPLETELY BEFORE YOU ATTEMPT TO SOLVE ANY
18 OF THE PROBLEMS THAT WILL BE PRESENTED. IF IN DOUBT, ASK THE INSTRUC-
19 TORS FOR ASSISTANCE.
20
21 PRINT "THE COMPUTER WILL PRINT PROBLEMS OR QUESTIONS ONE AT A TIME, AND IT
22 WILL WAIT FOR YOUR ANSWER BEFORE PROCEEDING. YOU WILL BE ALLOWED TWO
23 CHANCES TO COME UP WITH THE CORRECT ANSWER. IF YOU GIVE AN INCORRECT
24 ANSWER, THE COMPUTER WILL TELL YOU SO, AND WILL PRINT THE SAME PROB-
25 LEM AGAIN, IF YOU ANSWER INCORRECTLY A SECOND TIME THE COMPUTER WILL
26 PRINT THE CORRECT ANSWER AND WILL PROCEED TO THE NEXT PROBLEM.".
27 PRINT "COURSE IF YOUR FIRST ANSWER IS CORRECT THEN THE COMPUTER WILL AUTO-
28 MATICALLY PROCEED TO THE NEXT PROBLEM.
29
30 ******** IN CASE OF AN INCORRECT ANSWER WE SUGGEST THAT YOU CHECK YOUR
31 CALCULATIONS FOR MISTAKES IN YOUR OPERATIONS. ALSO CHECK THAT THE
32 NUMBERS YOU HAVE ARE THE SAME AS THOSE GIVEN BY THE COMPUTER.
33
34 PRINT "IT IS BELIEVED THAT THESE EXERCISES WILL HELP TO IMPROVE YOUR
35 SKILLS AND ALSO IMPROVE YOUR GRADES. REMEMBER THAT THESE ARE PRACTICE
36 SESSIONS AND ARE NOT EXAMS. THEREFORE YOU WILL NOT RECEIVE ANY
37 GRADE, THEY WILL TELL YOU WHAT YOUR WEAK AREAS ARE AND WILL HELP YOU
38 TO IMPROVE THEM.".
39
40 PRINT "YOU WILL NOT BE ALLOWED TO USE CALCULATORS DURING THESE PRACTICE
41 SESSIONS. PAPER WILL BE PROVIDED FOR YOU TO DO ALL NECESSARY CALCUL-
42ATIONS. THIS PAPER(S) SHOULD BE HANDED IN AT THE END OF THE SESSION.
43 SO THAT YOUR INSTRUCTOR CAN CHECK ON YOUR PROGRESS OR IMPROVEMENT AND
44 MAKE POSSIBLE SUGGESTIONS AS TO THE NEXT STEPS YOU SHOULD FOLLOW.
45
46 PRINT "HERE ARE SOME HELPFUL HINTS THAT WILL ENABLE YOU TO OPERATE THE"
47 "COMPUTER WITH A MINIMUM OF DIFFICULTY."
48 PRINT "DO NOT TYPE IN ANY INFORMATION THAT THE COMPUTER DOESN'T ASK FOR.
49 PRINT "WHEN TYPING THE INFORMATION REQUESTED BY THE COMPUTER, DO IT
50 SLOWLY; IF YOU DO NOT KNOW HOW TO TYPE, JUST PRESS LIGHTLY ON THE"
51 KEY(S) THAT YOU WANT, ONE BY ONE."
52 PRINT "AFTER YOU TYPE IN THE INFORMATION REQUESTED OR YOUR ANSWERS TO"
53 "THE PROBLEMS, ALWAYS PRESS THE <RETURN> KEY, THIS WAY THE COMPUTER"
54 KNOWS THAT YOU HAVE FINISHED ANSWERING.".
55 PRINT "YOU ARE PRACTICING WITH INTEGERS, WHERE NO DECIMALS ARE REQUIRED."
56 PRINT "****** EXAMPLE:
57 IF YOUR ANSWER IS 15.4526 THEN TYPE 15.4526"
58 IF YOUR ANSWER IS 12.002 THEN TYPE 12.002"
59 IF YOUR ANSWER IS 0.0001 THEN TYPE 0.0001"
60 PRINT "THE FOLLOWING TOPICS ARE READY FOR YOUR USE:".
61 PRINT "1. INTERGERS".
62 PRINT "2. DECIMALS".
63 PRINT "3. PROPORTIONS & DECIMALS".
64 PRINT "4. METRIC SYSTEM III".
65 PRINT "5. STOICHIOMETRY".
153 PRINT TAB(0)*4- WORD PROBLEMS",TAB(40)"10- SOLUTIONS I"\PRINT.
154 PRINT TAB(0)*4- BALANCING EQUATIONS",TAB(40)"11- SOLUTIONS II"\PRINT.
155 PRINT TAB(0)*4- METRIC SYSTEM I",TAB(40)"12- GAS LAWS II"\PRINT\PRINT\PRINT.
160 PRINT "CHOOSE THE PRACTICE SESSION THAT YOU WANT BY, TYPING THE TOPIC NUMBER:
161 PRINT "AFTER THE QUESTION MARK (?), " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " " "$1-
165 INPUT "WHICH TOPIC NUMBER WOULD YOU LIKE: ";N
170 IF N=1 THEN CHAIN"CHE008" ELSE IF N=2 THEN CHAIN"CHE108" ELSE IF N=3 THEN CHAIN"CHE208" ELSE IF N=4 THEN CHAIN"CHE308" ELSE IF N=5 THEN CHAIN"CHE408" ELSE IF N=6 THEN CHAIN"CHE508" ELSE IF N=7 THEN CHAIN"CHE608" ELSE IF N=8 THEN CHAIN"CHE708" ELSE IF N=9 THEN CHAIN"CHE808" ELSE IF N=10 THEN CHAIN"CHE908" ELSE IF N=11 THEN CHAIN"CHE018" ELSE IF N=12 THEN CHAIN"CHE028" ELSE IF N=13 THEN CHAIN"CHE038" ELSE IF N=14 THEN CHAIN"CHE048" ELSE IF N=15 THEN CHAIN"CHE058" ELSE IF N=16 THEN CHAIN"CHE068" ELSE IF N=17 THEN CHAIN"CHE078" ELSE IF N=18 THEN CHAIN"CHE088" ELSE IF N=19 THEN CHAIN"CHE098" ELSE IF N=20 THEN CHAIN"CHE0A8" ELSE IF N=21 THEN CHAIN"CHE0B8" ELSE IF N=22 THEN CHAIN"CHE0C8" ELSE IF N=23 THEN CHAIN"CHE0D8" ELSE IF N=24 THEN CHAIN"CHE0E8" ELSE IF N=25 THEN CHAIN"CHE0F8"
200 END
CHE008 10701 16-Apr-77
1 REM - THIS IS A PROGRAM USED TO PRACTICE VARIOUS MATHMETICAL OPERATIONS WITH INTEGERS.
2 REM THIS PROGRAM WAS DEVELOPED BY DR. JULIO GALLODO OF MQSTOS COMMUNITY COLLEGE PHYSICAL SCIENCE DEPT., AND WAS SUBSIDIZED BY A GRANT FROM THE NATIONAL SCIENCE FOUNDATION.
4 DIM A(15), B(15)
5 IF N9% = 1 THEN 50
9 PRINT
10 INPUT "NAME: " A1$
11 INPUT "S.S.N.: " A2$
12 PRINT "YOUR NAME IS A1$, AND YOUR SOCIAL SECURITY NUMBER IS A2$
15 PRINT A2$ ; ARE THEY CORRECT? TYPE 'Y' FOR YES OR 'N' FOR NO.
16 INPUT A3$:
19 IF A3$ = "Y" THEN 50
20 IF A3$ = "N" THEN 10 ELSE PRINT "USE 'Y' OR 'N' ONLY!!!! " : PRINT
21 GO TO 10
50 IF Z = 1 TO 12
52 IF Y > Z1 THEN 3000
55 RANDOMIZE
56 R1 = RND(Z) + 1 \ R2 = RND(Z) + 1 \ R3 = RND(Z) + 1 \ R4 = RND(Z) + 1
57 X1 = INT(R1*125) \ X2 = INT(R2*25) \ X3 = INT(R3*175) \ X4 = INT(R4*35)
58 X5 = X1 + X2 + X3 + X4 \ Y1 = X1 + X2 + X3 + X4 \ Y2 = X1 + X2 + X3 + X4
59 IF N9% = 0\ PRINT "Y" : PRINT
60 N9% = N9% + 1 \ FOR H% = 10% TO 25%\ IF N9% > 2 THEN 65 ELSE PRINT TAB(35) "*" : NEXT H%
62 PRINT TAB(35) "*" : IF N9% = 2 THEN 45 ELSE PRINT TAB(35) "*" : TAB(14) "*" : "PROBLEM": PRINT "*" : PRINT TAB(35) "*" : NEXT H%
65 Q1 = 6
66 CL = 0 : PRINT
70 PRINT
76 IF Z = 1 THEN PRINT X1 + "X2": \ A(1) = X1 + X2
77 IF Z = 2 THEN PRINT X1 + X2 + "X3": \ A(2) = X1 + X2 + X3
78 IF Z = 3 THEN PRINT X1 + "X3": \ A(3) = X1 + X3
83 IF Z = 4 THEN PRINT X3 + "X4": \ A(4) = X3 + X4
84 IF Z = 5 THEN PRINT X3 + X4 + "X5": \ A(5) = X3 + X4 + X5
85 IF Z = 6 THEN PRINT X3 + X4 + X5 + "X6": \ A(6) = X3 + X4 + X5 + X6
86 IF Z = 7 THEN PRINT X3 + X4 + X5 + X6 + "X7": \ A(7) = X3 + X4 + X5 + X6
87 IF Z = 8 THEN PRINT X3 + X4 + X5 + X6 + X7 + "X8": \ A(8) = X3 + X4 + X5 + X6 + X7 + X8
88 IF Z = 9 THEN PRINT X3 + X4 + X5 + X6 + X7 + X8 + "X9": \ A(9) = X3 + X4 + X5 + X6 + X7 + X8 + X9
89 IF Z = 10 THEN PRINT X3 + X4 + X5 + X6 + X7 + X8 + X9 + "X10": \ A(10) = X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10
90 IF Z = 11 THEN PRINT X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + "X11": \ A(11) = X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11
91 IF Z = 12 THEN PRINT X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + "X12": \ A(12) = X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12
92 IF Z = 13 THEN PRINT X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + "X13": \ A(13) = X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13
93 IF Z = 14 THEN PRINT X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + "X14": \ A(14) = X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + X14
94 IF Z = 15 THEN PRINT X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + X14 + "X15": \ A(15) = X3 + X4 + X5 + X6 + X7 + X8 + X9 + X10 + X11 + X12 + X13 + X14 + X15
95 IF Z = 16 THEN PRINT \ PRINT "CORRECT!!!": \ PRINT
1 REM. THIS IS A PRACTICE SESSION IN DECIMALS.
2 ! THIS PROGRAM WAS DEVELOPED BY DR. JULIO GALLARDO OF HOSTOS COMMUNITY COLLEGE,
3 AND WAS SUBSIDIZED BY A GRANT FROM THE NATIONAL SCIENCE FOUNDATION.

4 DIM A(20), B(20)
5 INPUT "CODE #: " ; N
6 PRINT
7 IF N = 1 THEN 40
8 PRINT
9 IF N = 1 THEN 40
10 INPUT ": AFTER THE QUESTION MARK (?): TYPE YOUR NAME. " ; A$1
11 PRINT
12 INPUT ": AFTER THE QUESTION MARK (?): TYPE YOUR SOCIAL SECURITY NUMBER. " ; A$2
13 PRINT
14 PRINT " YOUR NAME IS: " ; A$1; ", AND YOUR SOCIAL SECURITY NUMBER IS: " ; A$2
15 PRINT ": ARE THEY CORRECT? TYPE " ; Y " FOR YES AND " ; N " FOR NO. " ; A$3
16 INPUT A$3
17 IF A$3 = "N" THEN 9
18 IF A$3 = "Y" THEN PRINT "TYPE " ; Y " OR " ; N " ONLY!!! 
19 PRINT
20 FOR Z = 1 TO 15
21 RANDOMIZE
22 Ri = RND(Z) + 1
23 X1 = INT(R1 * 123) / 10
24 X2 = INT(R2 * 1230) / 10
25 X3 = INT(R3 * 1230) / 10
26 X4 = INT(R4 * 1230) / 10
27 X5 = INT(R5 * 1230) / 10
28 X6 = INT(R6 * 1230) / 10
29 X7 = INT(R7 * 1230) / 10
30 X8 = INT(R8 * 1230) / 10
31 X9 = INT(R9 * 1230) / 10
32 X10 = INT(R10 * 1230) / 10
33 X11 = INT(R11 * 1230) / 10
34 X12 = INT(R12 * 1230) / 10
35 X13 = INT(R13 * 1230) / 10
36 X14 = INT(R14 * 1230) / 10
37 X15 = INT(R15 * 1230) / 10
38 PRINT
39 IF Z = 1 THEN PRINT X1: "*" X2 = "A(1) = Y1
40 IF Z = 2 THEN PRINT X1: "*" X2 = "A(2) = Y2
41 IF Z = 3 THEN PRINT X1: "*" X2 = "A(3) = Y3
42 IF Z = 4 THEN PRINT X1: "*" X2 = "A(4) = X1 + X3 + X4 + X5
43 IF Z = 5 THEN PRINT X1: "*" X2 = "A(5) = X1 + X3 + X4 + X5
44 IF Z = 6 THEN PRINT X1: "*" X2 = "A(6) = X1 + X3 + X4 + X5
45 IF Z = 7 THEN PRINT X1: "*" X2 = "A(7) = X1 + X3 + X4 + X5
46 IF Z = 8 THEN PRINT X1: "*" X2 = "A(8) = X1 + X3 + X4 + X5
47 IF Z = 9 THEN PRINT X1: "*" X2 = "A(9) = X1 + X3 + X4 + X5
48 IF Z = 10 THEN PRINT X1: "*" X2 = "A(10) = X1 + X3 + X4 + X5
49 IF Z = 11 THEN PRINT X1: "*" X2 = "A(11) = X1 + X3 + X4 + X5
50 IF Z = 12 THEN PRINT X1: "*" X2 = "A(12) = X1 + X3 + X4 + X5
51 IF Z = 13 THEN PRINT X1: "*" X2 = "A(13) = X1 + X3 + X4 + X5
52 IF Z = 14 THEN PRINT X1: "*" X2 = "A(14) = X1 + X3 + X4 + X5
53 IF Z = 15 THEN PRINT X1: "*" X2 = "A(15) = X1 + X3 + X4 + X5
54 PRINT
55 IF Z = 1 THEN 125
56 PRINT NAME: " YOUR NUMBER IS " ; A(1)
57 IF Z = 2 THEN 100 ELSE PRINT " CORRECT!!! " ; PRINT
58 NEXT Z
59 IF A$3 = "N" THEN 9
60 IF A$3 = "Y" THEN PRINT " YOU ARE INCORRECT, TRY AGAIN. " ; PRINT
61 IF A$3 = "N" THEN PRINT " THE CORRECT ANSWER IS " ; PRINT

100 GOTO 125
401 IF C1=1 THEN 120
402 PRINT USING "##:###" A(Z) \GOTO 125
445 IF M1=1 THEN 490
450 PRINT "THE STUDENT "A1", HAS COMPLETED THIS SESSION."\PRINT
452 PRINT A1 "HAS ANSWERED " S " QUESTIONS CORRECTLY."\PRINT
454 PRINT "HERE ARE THE CORRECT ANSWERS AND " A1" ANSWERS:
490 PRINT TAB(3)"PROBLEM";TAB(15)"CORRECT ANSWER";TAB(35)"STUDENT ANSWER"
491 PRINT TAB(3)"********";TAB(15)"**********";TAB(35)"***********"\PRINT
500 FOR Z = 1 TO 15
501 IF Z<10 THEN PRINT TAB(5)"Z" ELSE PRINT TAB(4)"Z"
502 PRINT USING "##:###" A(Z)
503 PRINT TAB(38)"B(Z)\NEXT Z"
2000 END
This program is used to practice how to solve proportions and how to solve simple percent problems.

1. This program was developed by Dr. Julio Gallardo, of Hostos Community College, and was subsidized by a grant from the National Science Foundation.

2. The program is as follows:

```basic
10 PRINT "ENTER TWO NUMBERS AND SOLVE THE PROPORTION:"
20 INPUT "A:"; A1
30 INPUT "B:"; B1
40 INPUT "C:"; C1
50 INPUT "D:"; D1
60 LET X = C1 / D1
70 LET Y = A1 / X
80 LET Z = B1 / Y
90 PRINT "THE SOLUTION IS: X = "; X
100 PRINT "Y = "; Y
110 PRINT "Z = "; Z
120 END
```

This program calculates the solution for a proportion where three of the numbers are given and the fourth is to be solved. The solution is calculated by cross-multiplication and division.
I have completed this session.

PRINT

But you have answered 9 problems correctly.

PRINT

Here are the correct answers and your answers:

PRINT

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CORRECT ANSWER</th>
<th>STUDENT ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(1)</td>
<td>(1)</td>
</tr>
<tr>
<td>(2)</td>
<td>(2)</td>
<td>(2)</td>
</tr>
<tr>
<td>(3)</td>
<td>(3)</td>
<td>(3)</td>
</tr>
<tr>
<td>(4)</td>
<td>(4)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

PRINT

Using (1), (2), (3), (4), (5)

PRINT

Next:
REM - THIS IS A PRACTICE SESSION IN THE METRIC SYSTEM.

1. THIS PROGRAM HAS BEEN DEVELOPED BY DR. JULIO GALLARDO, OF HOSTOS COMMUNITY COLLEGE, AND WAS SUBSIDIZED BY A GRANT FROM THE NATIONAL SCIENCE FOUNDATION.

2. PRINT "YOU MUST GIVE YOUR ANSWERS TO THREE DECIMAL PLACES.


5. PRINT "IS: " A2$, ARE THEY CORRECT? TYPE 'Y' FOR YES AND 'N' FOR NO.

6. INPUT A3$ PRINT

7. IF A3$ = "N" THEN 10


9. RANDOMIZE

10. FOR Z = 1 TO 15

11. R1 = RND(Z) + 1

12. X1 = (INT(2560*R1))/100: X2 = (INT(1345*R1))/100

13. C1 = 0

14. IF X1 = C1 THEN S2

15. IF X2 = C1 THEN S2

16. PRINT PRINT

17. IF Z < 10 THEN PRINT " "

18. ELSE PRINT " "

19. PRINT " PROBLEM " Z

20. ELSE PRINT " "

21. PRINT PRINT

22. IF Z = 1 THEN PRINT "HOMOLOGUES " X1 " CENTIMETERS? " A11 = X1

23. IF Z = 2 THEN PRINT "HOMOLOGUES " X1 " KILOMETERS? " A12 = X1

24. IF Z = 3 THEN PRINT "HOMOLOGUES " X1 " METERS? " A13 = X1

25. IF Z = 4 THEN PRINT "HOMOLOGUES " X1 " DECIMETERS? " A14 = X1

26. IF Z = 5 THEN PRINT "HOMOLOGUES " X1 " MILLIMETERS? " A15 = X1

27. IF Z = 6 THEN PRINT "HOMOLOGUES " X1 " IN. " A16 = X1/12

28. IF Z = 7 THEN PRINT "HOMOLOGUES " X2 " FT. " A17 = X2/5280

29. IF Z = 8 THEN PRINT "HOMOLOGUES " X2 " MILES? " A18 = X2/5280

30. IF Z = 9 THEN PRINT "HOMOLOGUES " X1 " LITERS? " A19 = X1

31. IF Z = 10 THEN PRINT "HOMOLOGUES " X2 " GRAMS? " A20 = X2/454

32. IF Z = 11 THEN PRINT "HOMOLOGUES " X1 " QUARTS? " A21 = X1

33. IF Z = 12 THEN PRINT "HOMOLOGUES " X1 " INCHES? " A22 = X1

34. IF Z = 13 THEN PRINT "HOMOLOGUES " X1 " KILOMETERS? " A23 = X1

35. IF Z = 14 THEN PRINT "HOMOLOGUES " X2 " MILES? " A24 = X2/5280

36. IF Z = 15 THEN PRINT "HOMOLOGUES " X1 " LITERS? " A25 = X1
101 IF ABS(A(Z)-B(Z)) > .901 THEN 1000 ELSE PRINT "CORRECT!!!"
102 S=S+1:IF Z=16 THEN 499
103 NEXT Z
104 IF N1% = 1 THEN 514
105 PRINT "YOUR SESSION HAS ENDED. PLEASE CALL YOUR INSTRUCTOR. "PRINT
106 INPUT KZ
107 PRINT
108 PRINT "THE STUDENT " A1% " HAS COMPLETED THIS SESSION. "PRINT
109 PRINT A1% " HAS ANSWERED " S " QUESTIONS CORRECTLY. "PRINT
110 PRINT "HERE ARE THE CORRECT ANSWERS AND "A1% " S ANSWER:"
111 PRINT
112 GOTO 515
113 PRINT PRINT PRINT PRINT PRINT PRINT PRINT PRINT PRINT PRINT
114 PRINT TAB(5) "PROBLEM" TAB(18) "CORRECT ANSWERS" TAB(40) "STUDENT'S ANSWER"
115 PRINT TAB(5) ""TAB(18) ""TAB(40) ""TAB(90) ""TAB(90) ""TAB(90) ""TAB(90) "
116 PRINT PRINT PRINT PRINT PRINT PRINT PRINT PRINT PRINT PRINT
117 FOR Z = 1 TO 15: IF Z<10 THEN PRINT TAB(6) "''Z''ELSE PRINT TAB(5) "''Z"
118 PRINT TAB(20) "''A(Z)"
119 PRINT TAB(20) "''B(Z)"
120 NEXT Z
121 GOTO 2000
122 1000 C1=C1+1
123 IF C1 = 1 THEN PRINT "YOU ARE INCORRECT, TRY AGAIN." ELSE PRINT "YOU ARE WRO模 AGAIN. THE CORRECT ANSWER IS "PRINT
124 IF C1 = 2 THEN PRINT USING "**X**", A(Z)
125 IF C1 = 1 THEN 180 ELSE 200
126 2000 END

READY
10-APR-77

QHE408

1. This is a more difficult practice session in the metric system.
2. This program was developed by Dr. Julio Gallardo and Mr. Steven Delgado of Hostos Community College and was subsidized by a grant from the National Science Foundation.

11. INPUT "CODE", N1
12. IF N1 = 1 THEN 50
13. PRINT INPUT AFTER THE QUESTION MARK (?), TYPE YOUR NAME: "FA1"
14. PRINT INPUT AFTER THE QUESTION MARK (?), TYPE YOUR SOCIAL SECURITY NUMBER "/PRINT
15. PRINT "YOUR NAME IS: " A11: " AND YOUR SOCIAL SECURITY NUMBER " /PRINT
16. PRINT "IS " A26: " ARE THEY CORRECT? TYPE 'Y' FOR YES OR 'N' FOR: " /PRINT
17. IF A26 = "Y", THEN PRINT "TYPE 'Y' OR 'N'. ONLY!!! " /PRINT
18. FOR Z = 1 TO 10
19. RANDOMIZE
20. X1 = INT((19%*RND+1)*100)/100
21. X1 = INT((19%*RND+1)*100)/100
22. X1 = INT((19%*RND+1)*100)/100
23. PRINT " PROBLEM " Z
24. PRINT " ********** " /PRINT
25. IF Z = 1 THEN PRINT " A CAR MOVES WITH A SPEED OF " X1 " KM/HR. EXPRESS THIS SPEED IN M/SEC. " /PRINT
26. IF Z = 2 THEN PRINT " THE DENSITY OF AN OBJECT IS " X5 " G/ML. WHAT IS ITS DENSITY IN LB/GAL? " /PRINT
27. IF Z = 3 THEN PRINT " HOW MANY FT/SEC ARE THERE IN " X6 " M/HR? " /PRINT
28. IF Z = 4 THEN PRINT " A BOX HAS THE DIMENSIONS " X2" CM X X3" FT X X4" FT.
29. IF Z = 5 THEN PRINT " CALCULATE ITS VOLUME IN CUBIC CENTIMETERS. " /PRINT
30. IF Z = 6 THEN PRINT " A MAN WALKS " X6" METERS, " 643%*7 " YARDS, " 875% " FEET AND " X5" CENTIMETERS. HOW MANY MILES DID HE WALK? " /PRINT
31. IF Z = 7 THEN PRINT " A GALLON FISH TANK, AND YOU USE X2" LITER CONTAINER TO FILL IT. HOW MANY OF THESE CONTAINERS WILL IT TAKE? " /PRINT
32. IF Z = 8 THEN PRINT " IF A LIQUID HAS A DENSITY OF " X3" G/ML AND YOU HAVE " X1" LB OF THE SAME LIQUID, HOW MANY GALLONS DO YOU HAVE? " /PRINT
33. IF Z = 9 THEN PRINT " IF CAR 1 IS TRAVELLING AT " X4" KM/HR AND IS 21 KM BEHIND CAR 2, THEN WHICH WILL BE THE FIRST TO ARRIVE? " /PRINT
34. IF Z = 10 THEN PRINT " IF A CONTAINER WITH A CAPACITY OF " X2" CUBIC FEET, " X5" G/ML A LIQUID WITH A DENSITY OF " X3" G/ML WILL IT TAKE TO FILL THE CONTAINER? " /PRINT
35. IF N1 = 1 THEN 200
36. PRINT
37. INPUT " YOUR ANSWER " /PRINT
38. IF A85 = "A" THEN PRINT " CORRECT " /PRINT
39. IF Z = 10 THEN 500
500 PRINT "YOUR PRACTICE SESSION HAS ENDED. PLEASE CALL YOUR INSTRUCTOR" 
501 PRINT 
502 INPUT K% 
503 PRINT "THE STUDENT" A1$ "HAS COMPLETED THIS SESSION. "PRINT 
504 PRINT A1$ "HAS ANSWERED" S "QUESTIONS CORRECTLY. "PRINT 
505 PRINT 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1. REM - THIS IS A PRACTICE SESSION ON WORD PROBLEMS. 
2. "! THIS PROGRAM HAS BEEN PREPARED BY DR. PHIL H. GARDO, OF MUNRS COMMUNITY COLLEGE, AND WAS SUBSIDIZED BY A GPP TO THE NATIONAL SCIENCE FOUNDATION.
3. PRINT PRINT
4. INPUT A3$ 
5. A2$ 
6. INPUT A2$ 
7. INPUT A1$ 
8. A2$ 
9. RETURN
11. A1$ = 100*X4 - (X3*X4)/100
12. PRINT "A TRUCK CARRYING " X5 " LBS OF COAL WEIGHED " X 6. " LBS."
13. PRINT "WHAT PERCENT OF THE TOTAL WEIGHT WAS DUE TO THE WEIGHT OF THE TRUCK? 
14. A2$ = (100*(X6-X5))/X6
15. IF Z<>3 THEN 130 ELSE PRINT "HOW MANY SHEETS OF METAL 17" X12" INCHES THICK ARE THERE IN A PILE " X4 " INCHES "
16. PRINT "HIGH? 
17. A3$ = X4*X12
18. IF Z<>4 THEN 140 ELSE PRINT "A ROOF IS TILED AT A COST OF "$ X1 " PER SQUARE FOOT. IF THE ROOF MEASURE " X3 " X " X4 " FEET, WHAT IS THE COST OF THE JOB? 
19. A4$ = INT(100*X1*X3*X4)/100.
20. IF Z<>5 THEN 150 ELSE PRINT "AN OBJECT MOVES " X4 " FEET EVERY " X2 " SECOND S. HOW MANY FEET WOULD IT TRAVEL AFTER " X1 " HOURS? 
21. A5$ = 3600*X1*X4/X2
22. IF Z<>6 THEN 160 ELSE PRINT "IF AN AUTOMOBILE RUNS " X3 " MILES ON " X2 " GALLONS OF GAS, HOW FAR WOULD IT "
23. PRINT "GO ON A FULL " X7 " GALLONS TANK? 
24. A6$ = (INT(100*X3*X7/X2+5))/100
25. IF Z<>7 THEN 170 ELSE PRINT "IF A POLE " X7 " FEET HIGH CASTS A SHADOW " X1 " FEET LONG, HOW LONG A SHADOW " 
26. A7$ = (INT(100*X1*X8/X7))/100
27. IF Z<> 8 THEN 190 ELSE PRINT " X5 " LITERS OF A LIQUID, HAVE A WEIGHT OF " X 3. S. HOW MANY LBS OF THE "
A liquid would be used in an experiment that calls for \( x_4 \) liters.

If \( z > 9 \), then print a bar, \( x_1 \) meter long, weighs \( x_2 \) grams. How many grams would a similar bar weigh?

Print "bar " \( x_3 \) meter long, weighs?"

Print "bar: x3 " meter long, weighs?"

\[ a(10) = \lfloor \frac{100 \times x_2 \times x_3 - x_1}{100} \rfloor \]

If \( z < 10 \) then print a train makes a trip in \( x_8 \) hours traveling at a speed of \( x_7 \) mph. If \( a < 0 \), then print 0, else print "a train makes a trip in \( x_8 \) hours, how fast does it travel?"

Print "it moves? \( a(10) = \lfloor \frac{100 \times x_8 \times x_9}{100} \rfloor \)

If \( z < 11 \), then print: a substance is composed of \( x_2 \) grams of hydrogen, \( x_3 \) grams of sulfur, and \( x_6 \) grams of oxygen. What is the percent of oxygen found in the substance?

Print "and \( x_5 \) grams of oxygen. What is the percent of oxygen found in the substance?"

\[ a(11) = \lfloor \frac{100 \times (x_5 \times 100) - (x_2 + x_3 + x_5)}{100} \rfloor \]

If \( z < 12 \), then print in the following formula, \( D = \frac{AT^6}{D} \) has the value \( x_1 \): \( T \) has the value \( x_2 \) and \( G \) has the value \( x_3 \). What is the value of \( a \)? \( a(12) = x_1 / (x_2 \times x_3) \).

If \( z < 13 \), then print: a sugar solution is prepared mixing \( x_3 \) milliliters of water and \( x_4 \) grams of sugar.

Print "how many grams of sugar should be mixed with \( x_2 \) milliliters of water, to:

Obtain a similar solution? \( a(13) = (x_4 \times x_2) / x_3 \)

If \( z < 14 \), then print: the cost of a 3 lbs bag of coffee was \( x_1 \) last month. Today the same bag:

Print "cost \( x_2 \) \( x_2 \), what was the percent increase per lbs of coffee? \( a(14) = (x_2 - x_1) \times 100 / x_1 \)

If \( z = 1 \) then 297.

Input "your answer -----------------"; \( b(z) \).

Print "your answer: -------- "; \( b(z) \).

Print "your answer: -------- "; \( b(z) \).

If \( |a(b(z)) - b(z)| > 0.02 \) then 498 else print "correct!!!
500 if \( c 1 = c 1 + 1 \) then print "you are incorrect. try again. " else print "you are wrong again. the correct answer is -------- ";
502 if \( c 1 = c 1 + 1 \) then 230
503 print using \( f \); \( a(z) \)
505 goto 297
510 goto 2000
1994 if \( m 2 = 1 \) then 1993 else print "the student " \( a(1) \) ", has ended this session.
1991 print "a(1) ", has answered " \( s 1 ", questions correctly.
1992 print "here are: " \( a(1) \) "s answers and the correct answers."
1994 print "correct answer"; \( a(15) \)
2000 print tab(3) "problem"; tab(15) "correct answer"; tab(35) "student answer"
2001 print tab(3) "***********"; tab(15) "***********"; tab(35) "***********"
2002 print "correct answer"; tab(15) "***********"; tab(35) "***********"
2005 for \( z = 1 \) to \( n + b 2 + c 2 + d 2 \)
2007 print tab( \( f \) ); \( z \\
2009 print tab(13) \( a(z) \\
2010 print tab(39) \( b(z) \\
2014 next z \\
2015 \r
2020 input 1. do you want more problems "; \( q(z) \)
PRINT

2030 IF Q$="YES" THEN 2031 ELSE 1990
2031 IF L=1 THEN Z=Z+1 ELSE IF L=3 THEN Z=Z-1
2032 IF L=1 THEN 2038 ELSE IF L=2 THEN 2040 ELSE IF L=3 THEN 2042 ELSE IF L=4 THEN 3000
2038 INPUT "HOW MANY PROBLEMS " B\GOTO 52
2040 INPUT " HOW MANY PROBLEMS " C\GOTO 53
2042 INPUT " HOW MANY PROBLEMS " D\GOTO 54
2050 GOTO 55
3000 END
1. This is a practice session in balancing chemical equations.

Print: The computer will print an unbalanced chemical equation. You will type in your answer after the question mark (?).

Your answer should be typed in using the form 1, 9, 6, 7, etc. Your answer should include any coefficients that may be equal to one.

Print: Even though this usually not done, ...

Print: You should answer any question wrong twice. The computer will...

Print: The computer will print the balanced equation only with coefficients...

Print: Greater than 1, ...

Print: Randomize

Print s2 if s2=1 then chain "equat1" else if s2=2 then chain "equat2" else if s2=3 then chain "equat3" else if s2=4 then chain "equats"

Ready
EQUAT 12:09 18-Apr-77

1. This is a practice session in balancing chemical equations.
2. This program has been developed by Mr. Julio Gallardo and Mr. Steven Delgado
   at Hostos Community College and was subsidized by a grant from the National Science Foundation.

3. PRINT\PRINT\PRINT
4. INPUT "AFTER THE QUESTION MARK (?) TYPE YOUR NAME ";A1$\PRINT
5. INPUT "AFTER THE QUESTION MARK (?) TYPE YOUR SOCIAL SECURITY NUMBER "; A2$\PRINT
6. PRINT "YOUR NAME IS " A1$ " AND YOUR SOCIAL SECURITY NUMBER " \PRINT
7. PRINT "IS " A2$ " ARE THEY CORRECT? " TYPE 'Y' FOR YES OR 'N' FOR NO. " \PRINT
8. INPUT A3$\PRINT
9. IF A3$ = "N" THEN 3
10. IF A3$ = "Y" THEN PRINT "TYPE 'Y' OR 'N' ONLY!!!!!" \PRINT \GOTO 6
99. A2$ = " " A2$ = " "
100. A$ (3,1) = H + 0 -----> H 0 "
101. B$ (1,1) = 2 2 "
102. A$ (2,1) = N + H -----> NH "
103. B$ (2,1) = 2 3 "
104. A$ (3,1) = FeS + O -----> FeO + SO 2 "
105. B$ (3,1) = 2 2 "
106. A$ (4,1) = KC10 + O -----> KC1 + O "
107. B$ (4,1) = 3 2 "
108. A$ (5,1) = H S + HNO 3 -----> S + NO + H O "
109. B$ (5,1) = 2 3 "
110. A$ (1,2) = NaCl + H SO 4 -----> Na SO 4 + HCl "
111. B$ (1,2) = 2 4 "
112. A$ (2,2) = Ni + CO -----> Ni(CO) 2 "
113. B$ (2,2) = 3 4 "
114. A$ (3,2) = (NH ) 3: Cr 0 -----> N + Cr 0 + H O "
115. B$ (3,2) = 4 2 2 7 "
116. A$ (4,2) = K F + O -----> K + O "
118. B$ (4,2) = 2 2 "
119. A$ (5,2) = C H OH + O -----> CO + H O "
120. B$ (5,2) = 5 11 2 "
121. C$ (1,1) = 2H + O -----> 2H O "
122. C$ (2,1) = N + 3H -----> 2NH "
123. C$ (3,1) + 4FeS + 11O -----> 2FeO + 8SO 2 "
124. C$ (4,1) = 2KClO 3 -----> 2KCl + 3O "
125. C$ (5,1) = 3H S + 2HNO 3 -----> 3SO 2 + 2NO + 4H O "
126. C$ (1,2) = 2NaCl + H 0 SO 4 -----> Na SO 4 + 2HCl "
127. C$ (2,2) = M I + 4CO -----> Mi(CO) 4 "
128. C$ (3,2) = (NH ) 3: Cr 0 -----> N + Cr 0 + 4H O "
129. C$ (4,2) = 2KRF + 2H 0 -----> 2Kr + O + 4HF "
130. C$ (5,2) = 2C H OH + 15O 2 -----> 10CO 2 + 12H O "
100. RANDOMIZE \{\INT(4*\RND+1.5)\} \C1 = 0
101. IF Z1 = 1 THEN \IF I = W THEN 400
102. IF Z1 = 2 THEN IF I = W THEN 400 ELSE IF V1 = I THEN 400
103. IF Z1 = 3 THEN IF I = V1 THEN 400 ELSE IF V1 = I THEN 400 ELSE IF V1 = I THEN 400 ELSE IF I = V1 THEN 400
104. IF Z1 = 4 THEN IF I = V1 THEN 400 ELSE IF V1 = I THEN 400 ELSE IF I = V1 THEN 400 ELSE IF I = V1 THEN 400
105. IF Z1 = 5 THEN IF I = W THEN 400 ELSE IF I = W THEN 400 ELSE IF I = W THEN 400 ELSE IF I = W THEN 400
106. FOR J = 1 TO 2 \C1 = \C1 + 1 \PRINT \PRINT " PROBLEM " Q1 \IF Q1 < 10 THEN PRINT " \* \* \* ELSE PRINT " **\*\**\* \*
107. PRINT \PRINT A$ (1,J) \PRINT B$ (1,J) \PRINT \PRINT B1$
460 INPUT' ;NZ, MZ, PZ
461 GOTO 500
470 INPUT' ;NZ, MZ, PZ, QZ
480 GOTO 510
481 GOTO 520
500 IF J=1 THEN IF I=1 THEN 503 ELSE IF I=2 THEN 505 ELSE IF I=4 THEN 507
501 IF J=2 THEN IF I=2 THEN 509
503 IF NZ<>2 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>2 THEN 800 ELSE GOTO 900
505 IF NZ<>1 THEN 800 ELSE IF MZ<>3 THEN 800 ELSE IF PZ<>2 THEN 800 ELSE 900
507 IF NZ<>2 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF NZ<>3 THEN 800 ELSE 900
509 IF NZ<>1 THEN 800 ELSE IF MZ<>4 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE 900
510 IF J=1 THEN 518 ELSE IF I=1 THEN 512 ELSE IF I=3 THEN 514 ELSE IF I=5 THEN 516
512 IF NZ<>2 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>2
514 IF NZ<>MZ THEN 800 ELSE IF MZ<>PZ THEN 800 ELSE IF NZ<>1 THEN 800 ELSE IF QZ<>4
516 IF NZ<>2 THEN 800 ELSE IF MZ<>15 THEN 800 ELSE IF PZ<>10 THEN 800 ELSE IF QZ<>12
518 IF NZ<>4 THEN 800 ELSE IF MZ<>11 THEN 800 ELSE IF PZ<>2 THEN 800 ELSE IF QZ<>3
520 IF J=1 THEN IF NZ<>3 THEN 800 ELSE IF NZ<>2 THEN 800 ELSE IF PZ<>3 THEN 800 ELSE IF QZ<>2 THEN 800 ELSE IF NZ<>4 THEN 800 ELSE IF NZ<>2 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE IF QZ<>4 THEN 800 ELSE 900
600 FOR J=1 TO 2 FOR I=1 TO 5
602 PRINT " UNBALANCED "
603 PRINT " "
604 PRINT TAB(27)" A$(I,J) PRINT TAB(27) B$(I,J) PRINT
605 PRINT " "
607 PRINT " "
609 NEXT I
610 NEXT J
611 GOTO 3000
620 PRINT C1=C1+1
631 IF C1=1 THEN PRINT " YOU ARE INCORRECT, TRY AGAIN. " ELSE PRINT " YOU ARE WRO"632 NF AGAIN. THE CORRECT ANSWER IS "
633 PRINT " THE BALANCED EQUATION IS "
634 PRINT " "
635 PRINT TAB(25)" C$(I,J) PRINT TAB(25) "B$(I,J)
636 PRINT " "
637 PRINT " "
638 PRINT " "
639 PRINT " "
640 C1=0 NEXT J
650 Z1=Z1+1
660 PRINT IF Z1>4 THEN PRINT " YOUR SESSION HAS ENDED. " PRINT GOTO 600
670 IF Z1=1 THEN V1=1 ELSE IF Z1=2 THEN V1=2 ELSE IF Z1=3 THEN V1=3 ELSE IF Z1=4 THEN V1=4 ELSE IF Z1=5 THEN V1=5
680 GOTO 400
690 PRINT A1$
691 GOTO 803
3000 END.
1 REM - THIS IS A PRACTICE SESSION IN BALANCING CHEMICAL EQUATIONS.
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3 PRINT PRINT PRINT
4 PRINT " AFTER THE QUESTION MARK (?) TYPE YOUR NAME. ":A$PRINT
5 PRINT " AFTER THE QUESTION MARK (?) TYPE YOUR SOCIAL SECURITY NUMBER. ":A2$PRINT
6 PRINT " YOUR NAME IS " A$ PRINT " AND YOUR SOCIAL SECURITY NUMBER " PRINT
7 PRINT " IS " A2$ PRINT ". ARE THEY CORRECT? TYPE 'Y' FOR YES OR 'N' FOR NO. ":
8 INPUT A3$ PRINT
9 IF A3$ = "N" THEN 3
10 IF A3$ = "Y" THEN PRINT " TYPE 'Y' OR 'N' ONLY!!!! " PRINT GOTO 6
99 DIM A$(10)
DIM B$(10)
DIM C$(10)
65 D$(1) = "1,1,1,2" D$(2) = "1,1,1,2" D$(3) = "1,2,3,4,6" D$(4) = "2,2,2,1,1" D$(5) = "6,1,4,1,1" D$(1,4) = "2,1,2" D$(2,4) = "1,3,2,3" D$(3,4) = "3,2,1,6" D$(4,4) = "1,2,1,1" D$(5,4) = "6,1,4"
99 A1$ = " CORRECT!!! ":B1$ = " WHAT ARE THE CORRECT COEFFICIENTS ":
130 A$(1,3) = " BaCl + \( NH \cdot CO \) \longrightarrow BaCO + NH Cl"
131 B$(1,3) = " 2 4 2 3 4 "
132 A$(2,3) = " Al(OH) + NaOH \longrightarrow NaAlO + H O "
133 B$(2,3) = " 2 2 "
134 A$(3,3) = " Fe(OH) + H SO \longrightarrow Fe \( SO \) + H O "
135 B$(3,3) = " 2 2 2 3 2 "
136 A$(4,3) = " Na + H O \longrightarrow NaOH + H "
137 B$(4,3) = " 2 2 "
138 A$(5,3) = " Mg + N \longrightarrow MgN "
139 B$(5,3) = " 2 3 2 "
145 A$(1,4) = " Mg + O \longrightarrow MgO "
146 B$(1,4) = " 2 "
147 A$(2,4) = " CHO + O \longrightarrow CO + H O "
148 B$(2,4) = " 2 2 2 "
149 A$(3,4) = " FeCl + Na PO \longrightarrow Fe \( PO \) + NaCl"
150 B$(3,4) = " 2 3 4 2 "
151 A$(4,4) = " CaCO + H O \longrightarrow Ca(OH) "
152 B$(4,4) = " 2 2 2 "
153 A$(5,4) = " NaO + PO \longrightarrow NaPO "
154 B$(5,4) = " 2 4 10 "
320 C$(1,3) = " BaCl + \( NH \cdot CO \) \longrightarrow BaCO + 2NH Cl"
321 C$(2,3) = " Al(OH) + NaOH \longrightarrow NaAlO + 2H O "
322 C$(3,3) = " Fe(OH) + 3H SO \longrightarrow Fe \( SO \) + 6H O "
323 C$(4,3) = " 2Na + 2H O \longrightarrow 2NaOH + H "
324 C$(5,3) = " 2Na + N \longrightarrow 2NaN "
325 C$(1,4) = " 2Na + O \longrightarrow 2NaO "
326 C$(2,4) = " CHO + 30 \longrightarrow 2CO + 3H O "
327 C$(3,4) = " FeCl + 2Na PO \longrightarrow Fe \( PO \) + 6NaCl "
328 C$(4,4) = " CaCO + 2H O \longrightarrow Ca(OH) "
329 C$(5,4) = " 6NaO + PO \longrightarrow 4NaPO "
380 RANDOMIZE
381 I = (INT(4*RND +1,5)) / 1 = 0
384 IF ZI = 1 THEN IF I = VZ THEN 380
396 IF ZI = 2 THEN IF I = VZ THEN 380 ELSE IF I = V1Z THEN 380
398 IF ZI = 3 THEN IF I = VZ THEN 380 ELSE IF I = V1Z THEN 380 ELSE IF I = V2Z THEN 380
399 IF ZI = 4 THEN IF I = VZ THEN 380 ELSE IF I = V1Z THEN 380 ELSE IF I = V2Z THEN 380 ELSE IF I = V3Z THEN 380
430 FOR J = 3 TO 4:O1 = QI + 1:PRINT PRINT PROBLEM " QI IF QI<10 THEN PRINT " **
*** ELSE PRINT " " ************** ***
405 PRINT " PRINT PRINT A$(I,J) PRINT B$(I,J) PRINT PRINT B1$"
410 IF J=3 THEN IF I=5 THEN 700 ELSE 720
415 IF J=4 THEN IF I=1 THEN 700 ELSE IF I=5 THEN 700 ELSE 720
500 IF J=3 THEN 504 ELSE 507
504 IF NZ<>3 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE 900
507 IF I=1 THEN IF NZ<>2 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>2 THEN 800 ELSE 900
508 IF NZ<>6 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>4 THEN 800 ELSE 900
509 IF J=3 THEN 520 ELSE 530
515 IF J=3 THEN 520 ELSE 530
520 IF I<3 THEN 525
521 IF I=3 THEN 522 ELSE 523
522 IF NZ<>2 THEN 800 ELSE IF MZ<>3 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE 900
523 IF NZ<>2 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>2 THEN 800 ELSE IF QZ<>6 THEN 800 ELSE 900
524 IF NZ<>1 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>2 THEN 800 ELSE 900
530 IF I=2 THEN 532 ELSE IF I=3 THEN 534 ELSE 536
532 IF NZ<>1 THEN 800 ELSE IF MZ<>3 THEN 800 ELSE IF PZ<>2 THEN 800 ELSE IF QZ<>3 THEN 800 ELSE 900
534 IF NZ<>3 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>6 THEN 800 ELSE 900
536 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
600 FOR J=3 TO 4\FOR I=1 TO 5
602 PRINT "UNBALANCED ---------";
604 PRINT TAB(27)"A$(I,J)\PRINT TAB(27)"B$(I,J)\PRINT
606 PRINT "********** BALANCED --";
607 PRINT TAB(30)"C$(I,J)\PRINT TAB(30)"B$(I,J)\PRINT
608 NEXT I
610 NEXT J
611 GOTO 3000
700 INPUT "I1%Y%F%Z%
710 GOTO 500
720 INPUT "I1%Y%F%Z%Q%
725 GOTO 515
800 PRINT C1=C1+1;
802 IF C1=1 THEN PRINT "YOU ARE INCORRECT. TRY AGAIN. " ELSE PRINT "YOU ARE WRONG AGAIN. THE CORRECT ANSWER IS ---------";
804 IF C1=1 THEN 410 ELSE PRINT B$(I,J)\PRINT\PRINT "THE BALANCED EQUATION IS AS FOLLOWS. 
806 PRINT TAB(25)"C$(I,J)\PRINT TAB(25)"B$(I,J)
808 C1=0\NEXT J
810 Z1=Z1+1
812 PRINT \IF Z1>4 THEN PRINT "YOUR SESSION HAS ENDED. PLEASE CALL THE INSTRUCTOR. "\PRINT\GOTO 600
814 IF Z1=1 THEN V1%=I ELSE IF Z1=2 THEN V1%=I ELSE IF Z1=3 THEN V2%=I ELSE IF Z1=4 THEN V3%=I
816 GOTO 360
900 PRINT A1%
902 GOTO 806
900 END
EQUAT 09:19 19-Apr-77
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REM
PRINT "" ; PRINT
PRINT ; PRINT
3 PRINT "" ; PRINT
PRINT ; PRINT
PRINT ; PRINT
5 PRINT ; PRINT
PRINT ; PRINT
PRINT ; PRINT
PRINT ; PRINT
PRINT ; PRINT
10 IF A3$ = "N" THEN 3
10 IF A3$ = "Y" THEN PRINT "" ; PR
315 IF J=6 THEN 525 ELSE IF I=1 THEN 516 ELSE IF I=2 THEN 518 ELSE IF I=3 THEN 520
316 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>2 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
317 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>4 THEN 800 ELSE 900
318 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
319 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
320 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
321 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
322 IF I=2 THEN 527 ELSE IF I=3 THEN 529 ELSE IF I=5 THEN 531
323 IF NZ<>1 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
324 IF NZ<>1 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
325 IF NZ<>3 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>3 THEN 800 ELSE 900
326 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>3 THEN 800 ELSE 900
327 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>3 THEN 800 ELSE 900
328 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>3 THEN 800 ELSE 900
329 IF NZ<>1 THEN 800 ELSE IF MZ<>2 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>3 THEN 800 ELSE 900
330 IF NZ<>2 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
331 IF NZ<>2 THEN 800 ELSE IF MZ<>1 THEN 800 ELSE IF PZ<>1 THEN 800 ELSE IF QZ<>1 THEN 800 ELSE 900
332 PRINT * UNBALANCED --------
333 PRINT TAB(25) 'A$(I,J)
334 PRINT TAB(25) 'B$(I,J)
335 PRINT ***** BALANCED ------
336 PRINT TAB(30) 'C$(I,J)
337 PRINT TAB(30) 'B$(I,J)
338 NEXT I
339 NEXT J
340 GOTO 3000
341 INPUT 'NZ,MZ,PZ
342 GOTO 500
343 INPUT 'NZ,MZ,PZ,QZ
344 GOTO 315
345 INPUT 'NZ,MZ,PZ,QZ,RZ
346 INPUT 740
347 P$=NZ+C1=C1+1
348 PRINT IF C1<>1 THEN PRINT 7 YOU ARE INCORRECT. TRY AGAIN. ELSE PRINT 7 YOU ARE WRONG AGAIN. THE CORRECT ANSWER IS 7
349 IF C1<>1 THEN 410 ELSE PRINT D$(I,J)
350 PRINT 'THE BALANCED EQUATION IS AS FOLLOWS:
351 PRINT
352 PRINT TAB(25) 'C$(I,J)
353 PRINT TAB(25) 'B$(I,J)
354 GOTO 50
355 C1=0
356 NEXT J
357 Z1=Z1+1
358 IF Z1=4 THEN PRINT 7 YOUR SESSION HAS ENDED. PLEASE CALL THE INSTRUCTOR.
359 PRINT GOTO 600
360 IF Z1<>4 THEN V1=I ELSE IF Z1=2 THEN V1=I ELSE IF Z1=3 THEN V2=I ELSE IF Z1=4 THEN V3=I
361 GOTO 380
362 PRINT A$(I,J) GOTO 806
363 END
1 REM- THIS IS A PRACTICE SESSION IN BALANCING CHEMICAL EQUATIONS.
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3 \ OF HOSTOS COMMUNITY COLLEGE, AND WAS SUBSIDIZED BY A GRANT FROM THE NATIONAL SCIENCE FOUNDATION.
4 PRINT/PRINT
5 INPUT "AFTER THE QUESTION MARK (?)", TYPE YOUR NAME. ""A1$" PRINT
6 INPUT "AFTER THE QUESTION MARK (?)", TYPE YOUR SOCIAL SECURITY NUMBER. ""A2$" PRINT
7 PRINT "YOUR NAME IS; " A1$ ", AND YOUR SOCIAL SECURITY NUMBER "A2$" PRINT
8 INPUT A3$ 
9 IF A3$ = "N" THEN 3
10 IF A3$ = "Y" THEN PRINT "TYPE 'Y' OR 'N' ONLY!!!!" \PRINT \GOTO6
57 DIM A$(10,10) \ DIM B$(10,10) \ DIM C$(10,10)
60 D$(1,7) = "4, 3, 2" \ D$(2,7) = "1, 3, 1, 3" \ D$(3,7) = "1, 1, 1" \ D$(4,7) = "3, 1, 2, 1" \ D$(5,7) = "1, 1, 1, 5"
63 D$(1,8) = "6, 6, 1, 6" \ D$(2,8) = "1, 5, 3, 4" \ D$(3,8) = "2, 3, 2, 2" \ D$(4,8) = "2, 1, 2" \ D$(5,8) = "2, 3, 1, 6"
97 A1% = " CORRECT!!! "B1% = " WHAT ARE THE CORRECT COEFFICIENTS "
190 A$(1,7) = "NH + O ----> N + H 0 "
191 B$(1,7) = "2 2 2 2"
192 A$(2,7) = "H PO + NaOH ----> Na PO + H 0 "
193 B$(2,7) = "3 4 3 2"
194 A$(3,7) = "NaCl + AgNO ----> NaNO + AgCl "
195 B$(3,7) = "3 3 3 3"
196 A$(4,7) = "NO + H O ----> HNO + NO "
197 B$(4,7) = "2 2 2 2"
198 A$(5,7) = "PC1 + H O ----> PO + HCl"
199 B$(5,7) = "5 2 3 4"
205 A$(1,8) = "H O + CO ----> H 0 + 0 "
206 B$(1,8) = "2 6 12 6 2"
207 A$(2,8) = "C H + 0 ----> CO + H 0 "
208 B$(2,8) = "3 2 2 2 2"
209 A$(3,8) = "ZnS + 0 ----> ZnO + SO"
210 B$(3,8) = "2 2 2 2"
211 A$(4,8) = "Ca + 0 ----> Ca 0 "
212 B$(4,8) = "2 2 2 2"
213 A$(5,8) = "Al(OH) + K SO ----> Al (SO ) + KOH"
214 B$(5,8) = "3 2 4 2 4 3"
360 C$(1,7) = "4NH + 30 ----> 2N + 6H 0 "
361 C$(2,7) = "H PO + 3NaOH ----> Na PO + 3H O "
362 C$(3,7) = "NaCl + AgNO ----> NaNO + AgCl "
363 C$(4,7) = "3NO + O ----> 2N O + NO "
364 C$(5,7) = "PC1 + H O ----> PO + 05HCl"
365 C$(1,8) = "6H O + CO ----> 3H 0 + 60"
366 C$(2,8) = "C H + 50 ----> 3CO + 4H 0"
367 C$(3,8) = "2ZnS + 30 ----> 2ZnO + 2SO"
368 C$(4,8) = "2Ca + O ----> 2CaO"
369 C$(5,8) = "2Al(OH) + 3K SO ----> Al (SO ) + 6KOH"
380 RANDOMIZE\I=(INT(4*RND + 1.5))\C1=0
384 IF Z1=1 THEN IF V2=1 THEN 380
384 IF Z1=2 THEN IF I=V2 THEN 390 ELSE IF I=V12 THEN 380
383 IF Z1=3 THEN IF I=V2 THEN 380 ELSE IF I=V12 THEN 380 ELSE IF I=V2 THEN 380
389 IF Z1=4 THEN IF I=V12 THEN 380 ELSE IF I=V2 THEN 380 ELSE IF I=V2 THEN 380
390 FOR J=7 TO 8 \ G1Z=0 \ 1X+1 \ PRINT \PRINT 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\PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \PRINT \P
12 IF I=1 THEN 516 ELSE IF I=2 THEN 515 ELSE IF I=3 THEN 516 ELSE IF I=4 THEN 517
13 IF NZ<1 THEN 800 ELSE IF MZ<1 THEN 800 ELSE IF PZ<1 THEN 800 ELSE IF QZ<5 THEN 800 ELSE 900
14 IF NZ<4 THEN 800 ELSE IF MZ<3 THEN 800 ELSE IF PZ<2 THEN 800 ELSE IF QZ<6 THEN 800 ELSE 900
15 IF NZ<1 THEN 800 ELSE IF MZ<3 THEN 800 ELSE IF PZ<1 THEN 800 ELSE IF QZ<3 THEN 800 ELSE 900
16 IF NZ<1 THEN 800 ELSE IF MZ<1 THEN 800 ELSE IF PZ<1 THEN 800 ELSE IF QZ<1 THEN 800 ELSE 900
17 IF NZ<3 THEN 800 ELSE IF MZ<1 THEN 800 ELSE IF PZ<2 THEN 800 ELSE IF QZ<1 THEN 800 ELSE 900
18 IF I=1 THEN 522 ELSE IF I=2 THEN 523 ELSE IF I=3 THEN 524 ELSE IF I=5 THEN 525
19 IF NZ<6 THEN 800 ELSE IF MZ<6 THEN 800 ELSE IF PZ<1 THEN 800 ELSE IF QZ<6 THEN 800 ELSE 900
20 IF NZ<1 THEN 800 ELSE IF MZ<5 THEN 800 ELSE IF PZ<3 THEN 800 ELSE IF QZ<4 THEN 800 ELSE 900
21 IF NZ<2 THEN 800 ELSE IF MZ<3 THEN 800 ELSE IF PZ<2 THEN 800 ELSE IF QZ<2 THEN 800 ELSE 900
22 IF NZ<2 THEN 800 ELSE IF MZ<3 THEN 800 ELSE IF PZ<1 THEN 800 ELSE IF QZ<6 THEN 800 ELSE 900
23 FOR J=7 TO 8
24 FOR i=1 to 5
25 PRINT * UNBALANCED -------
26 PRINT TAB(25)"A$$(I,J)PRINT TAB(25)"B$$(I,J)PRINT
27 PRINT "********** BALANCED -------
28 PRINT TAB(30)"C$$(I,J)PRINT TAB(30)"B$$(I,J)PRINT
29 NEXT I
30 NEXT J
31 GOTO 3000
32 INPUT "INZ$M$,P$,Q$
33 GOTO 510
34 INPUT "INZ$M$,P$
35 GOTO 500.
36 PRINT$C1=C1+1
37 IF C1=1 THEN PRINT "YOU ARE INCORRECT, TRY AGAIN, " ELSE PRINT " YOU ARE WRONG AGAIN, THE CORRECT ANSWER IS
38 IF C1=1 THEN 410 ELSE PRINT D$$(I,J)PRINT PRINT " THE BALANCED EQUAT
39 IS AS FOLLOWS:
40 PRINT TAB(25)"C$$(I,J)PRINT TAB(25)"B$$(I,J)
41 C1=0\NEXT J
42 Z1=Z1+1\PRINT\IF Z1>4 THEN PRINT YOUR SESSION HAS ENDED, PLEASE CALL
43 THE INSTRUCTOR. \PRINT\GOTO 55
44 IF Z1=1 THEN V%=-1 ELSE IF Z1=2 THEN W%=-1 ELSE IF Z1=3 THEN V%2=-1 ELSE IF Z1=
45 THEN V%=-1)
46 GOTO 5380
47 PRINT\PRINT A1$\S=S+1
48 GOTO 906
49 END
PRINT "YOUR NAME IS: " + A1$ + " AND YOUR SOCIAL SECURITY NUMBER " + A2$
18 IF A4$ = "N" THEN 10
19 IF A4$ <> "Y" THEN PRINT " TYPE 'Y' OR 'N' ONLY!!!" 
20 Q$ = A1$ + " + " + A2$
21 R$ = SYS(CHR$(8%) + Q$)
98 PRINT 

100 A3$ = " BASED ON THE FOLLOWING EQUATION: "
131 B$(1,3) = " 2 4 3 "
133 B$(2,3) = " 3 2 "
135 B$(3,3) = " 2 4 3 "
137 B$(4,3) = " 2 "
139 B$(5,3) = " 2 3 "
320 C$(1,3) = " BaCl + (NH) CO ----> BaCO + 2NH Cl 
321 C$(2,3) = " Al(OH) + NaOH ----> NaAlO + 2H O "
322 C$(3,3) = " 2Fe(OH) + 3H SO ----> Fe (SO ) + 6H O 
323 C$(4,3) = " 2Na + 2H O ----> 2NaOH + H "
324 C$(5,3) = " 3Mg + N . ----> Mg N "
325 T9$(1) = " grams" T9$(2) = " moles" T9$(3) = " moles" T9$(4) = " liters" T9$(5) = " liters" 
329 FOR ZZ=1 TO 5
330 RANDOMIZE
331 Y1=(INT(40500*KND+5000)) /100
332 X1=(INT(500*KND+95))/100
333 X2=(INT(795*KND+1))/100
334 X4=(INT(4256*KND+154))/100
336 K1=0
337 K1=K1+1 OR L5=50 TO 41
338 NEXT L5
339 PRINT: 
340 IF K1=1 THEN 33$ ELSE PRINT T-B E) ** PROBLEM Z% PRINT ** GO TO 337
345 PRINT 
346 PRINT TA(5) " A3$ 
347 PRINT 
350 IF ZZ<>1 THEN 3e ELSE PRINT " HOW MANY MOLES OF BARIUM CARBONATE ARE NEEDED? "
351 PRINT " BARIUM CARBONATE "
352 A4$(X) = (INT(2070*XXX))
360 IF ZZ<>2 THEN 36$ ELSE PRINT " HOW MANY MOLES OF SODIUM HYDROXIDE REACT WITH ALUMINUM HYDROXIDE TO PRODUC "
361 PRINT Y1 " grams of WATER "
362 A(2) = (INT(Y1/36))/
365 IF ZZ<>3 THEN 37$ ELSE PRINT X2 " moles OF SULFURIC ACID REACT WITH IRON HYD "
366 PRINT " IRON SULFATE WILL BE PRODUCED? "
368 A(3) = (INT(X2/33)) /100 
370 IF ZZ<>4 THEN 37$ ELSE PRINT " IF YO " " MOLES OF SODIUM ARE MADE TO REACT W "
371 PRINT " HYDROGEN WILL BE COLLECTED IF THE REACTION TAKES PLACE A " X1 " atm "
372 PRINT " X4 " DEGREES " }
A(4%) = (INT((273+X4)*Y2*.178372/X1))/100

IF ZX<>5 THEN 379 ELSE PRINT * HOW MANY LITERS OF NITROGEN ARE REQUIRED TO REACT WITH MAGNISIUM, IF " Y1
PRINT * 3 2 *
A(5%) = (INT(Y1*X22.4))/100
IF N1%=1 THEN 385
PRINT \PRINT YOUR ANSWER IS ----------------> B(Z%) \PRINT \PRINT
INPUT * IF C1=1 THEN PRINT * YOU ARE INCORRECT. TRY AGAIN. ELSE PRINT * YOU ARE WRONG AGAIN. THE CORRECT ANSWER IS ----------------> B
IF C1=1 THEN 380 ELSE PRINT A(Z%);TRY$(Z%)
C1=0
GOTO 385
S=S+1\Z% = *
PRINT \PRINT \PRINT Z%
GOTO 502
IF N1%=1 THEN 810
PRINT \PRINT \PRINT THIS SESSION HAS ENDED. IF YOU WISH TO CONTINUE TO MORE DIFFICULT
PRINT * PROBLEMS, TYPE THE LETTER 'D', AND THEN PRESS THE 'RETURN' KEY. *
INPUT *;H$
IF H$="D" THEN CHAIN *CHE71825
PRINT \PRINT \PRINT
PRINT ** A1$ **, HAS ENDED THIS SESSION AT ** TIME$(0) **
PRINT * A1$ * HAS ANSWERED S * QUESTION CORRECTLY. * \PRINT
PRINT * THE FOLLOWING IS A LISTING OF A1$ 'S ANSWERS AND THE ** \PRINT
PRINT * CORRECT ANSWER FOR EACH PROBLEM
PRINT \PRINT \PRINT **PROBLEM**;TAB(21) **CORRECT ANSWER**;
PRINT \PRINT **A1$;PRINT ** S;ANSWER**
PRINT \PRINT FOR I%=1 TO 52
PRINT TAB(8) " I%;TAB(30) " A(I%)TAB(52) " B(I%)
NEXT I%
HE718 11:34 22-APR-77
2 REM - THIS IS A PRACTICE SESSION ON STOICHIOMETRY
3 ! THIS PROGRAM HAS BEEN DEVELOPED BY DR. JULIO GALLARDO AND MR. STEVEN DELGADO,
4 OF HOSTOS COMMUNITY COLLEGE, AND WAS SUBSIDIZED BY A GRANT FROM THE NATIONAL SCI
5 ENCE FOUNDATION.
6 PRINT\PRINT\PRINT
7 INPUT * CODE *:N1$\PRINT.
8 IF N1$ = 1 THEN 98
9 INPUT * AFTER THE QUESTION MARK (?), TYPE YOUR NAME. *:A1$\PRINT
10 INPUT * AFTER THE QUESTION MARK (?), TYPE YOUR SOCIAL SECURITY NUMBER *:A2$\PRINT
11 PRINT * YOUR NAME IS *, A1$*, AND YOUR SOCIAL SECURITY NUMBER *\PRINT
12 PRINT * IS, A2*, ARE THEY CORRECT? TYPE 'Y' FOR YES OR 'N' FOR NO. *
13 IF A4$ = 'N'\PRINT
14 IF A4$<>'Y' THEN PRINT * TYPE 'Y' OR 'N' ONLY!!!\PRINT\GOTO 15
15 GOTO 98
16 PRINT\PRINT\PRINT
17 DIM A(10), B(10)
18 DIM B$(10,10), C$(10,10)
19 A3$ = " BASED ON THE FOLLOWING EQUATION: \PRINT
20 B$(1,1) = 2 2 2 2
21 B$(2,1) = 2 2 3 3
22 B$(3,1) = 2 4 4 4
23 B$(4,1) = 3 3 3 3
24 B$(5,1) = 4 4 4 4
25 B$(1,2) = 2 2 2 2
26 B$(2,2) = 2 2 2 2
27 B$(3,2) = 2 2 2 2
28 B$(4,2) = 2 2 2 2
29 B$(5,2) = 2 2 2 2
30 C$(1,1) = 2H + 0 \rightarrow 2H 0
31 C$(2,1) = N + 3H \rightarrow 2NH
32 C$(3,1) = 4FeS + 110 \rightarrow 2Fe 0 + 8S
33 C$(4,1) = 2KCI0 \rightarrow 2KCI + 30
34 C$(5,1) = 3HS - 2HNO \rightarrow 3S + 2NO + 4H 0
35 C$(1,2) = 2NaCl + H SO \rightarrow Na SO + 2HCl
36 C$(2,2) = Ni + 4CO \rightarrow Ni(CO)
37 C$(3,2) = (NH) Cr O \rightarrow N + Cr + 4H
38 C$(4,2) = 2KmF + 2H 0 \rightarrow 2Km + 4HF
39 C$(5,2) = 2C H OH + 150 \rightarrow 10CO - 12H 0
40 FOR Z% = 1 TO 10
41 RND= (INT(700+RND+100))/100\PRINT
42 V1 AND V2 ARE VOLUMES WITH VALUES BETWEEN 1 AND 8 WITH 1 DECIMAL PLACES
43 V1 = (INT(4985+RND+15))/1000\PRINT
44 M1 AND M2 ARE MOLES BETWEEN THE VALUES 5 AND 5 WITH 3 DECIMAL PLACES
45 M3 = (INT(4000+RND+100))/100\PRINT
46 M4 = (INT(4000+RND+20))/100\PRINT
47 M5 = (INT(4000+RND+15))/100\PRINT
48 M6 = (INT(4000+RND+20))/100\PRINT
49 M7 = (INT(2950+RND+105))/100\PRINT
50 M8 = (INT(3000+RND+100))/100\PRINT
51 M9 = (INT(2950+RND+105))/100\PRINT
52
391 M7 AND M8 ARE MASS UNITS BETWEEN THE VALUE S OF 100 AND 400 WITH 2 DECIMAL PLACES.
395 M9 = (INT (700*RND+100))/100; M0 = (INT (750*RND+50))/100
396 M9 AND M0 ARE MASS UNITS BETWEEN THE VALUE OF 1 AND 8 TO BE USED WITH KILOGRAMS AND HAS 2 DECIMAL PLACES.
400 IF Z<1 THEN 410 ELSE PRINT A3$
401 PRINT TAB(15) 'C*(1,1)' PRINT TAB(15) 'B*(1,1)' PRINT
402 PRINT * CALCULATE THE NUMBER OF LITERS OF O (AT STP) NEEDED TO FORM M1 MOLES.
403 PRINT TAB(36) '2'
404 A(1) = (INT (M1*1120))/100
410 IF Z<2 THEN 420 ELSE PRINT A3$
411 PRINT TAB (15) 'C*(4,1)' PRINT TAB (15) 'B*(4,1)
412 PRINT * CALCULATE THE NUMBER OF MOLES OF O PRODUCED BY HEATING M3 g OF
413 PRINT TAB (35) '2'
414 PRINT * POTASSIUM CHLORATE (KClO3).
415 PRINT TAB (25) '3'
416 A(2) = (INT (300*M3/228.9))/100
420 IF Z<3 THEN 430 ELSE PRINT A3$
421 PRINT TAB (15) 'C*(1,2)' PRINT TAB (15) 'B*(1,2)
422 PRINT * IF M3 g OF NaCl ARE REACTED WITH M4 g OF SULFURIC ACID
423 PRINT * (H2SO4), HOW MANY MOLES OF Na2SO4 ARE PRODUCED?
424 PRINT TAB (3) '2' TAB (10) 'A'; TAB (31) '2' TAB (34) '4'
425 A(3) = (INT (M3*100/1.69))/100
430 IF Z<4 THEN 440 ELSE PRINT A3$
431 PRINT TAB (15) 'C*(5,1)' PRINT TAB (15) 'B*(5,1)
432 PRINT * IF M2 g MOLES OF HYDROGEN SULFIDE GAS REACTS WITH AN EXCESS OF NITRIC ACID, HOW
433 PRINT * MANY GRAMS OF NITROUS OXIDE ARE PRODUCED?
435 A(4) = (INT (6000*M2/3))/100
440 IF Z<5 THEN 450 ELSE PRINT A3$
441 PRINT TAB (15) 'C*(2,1)' PRINT TAB (15) 'B*(2,1)
442 PRINT * HOW MANY LITERS OF NITROGEN GAS WOULD DISAPPEAR IN THE PRODUCTION OF
443 PRINT * V1 'OF' NF
444 PRINT * GASIOUS AMMONIA, BOTH GASES BEING MEASURED AT THE SAME TEMPERATURE AND
445 A(5) = (INT (V1*50))/100
450 IF Z<6 THEN 460 ELSE PRINT A3$
451 PRINT TAB (15) 'C*(3,1)' PRINT TAB (15) 'B*(3,1)
452 PRINT * HOW MANY KILOGRAMS OF FERRIC OXIDE (Fe2O3) CAN BE OBTAINED BY ROASTING
453 PRINT TAB (39) '2' TAB (41) '3'
454 PRINT * k4 OF FERROUS SULFIDE (FeS)?
455 PRINT TAB (27) '2'
456 A(6) = (INT (M9*4800/32))/100
460 IF Z<7 THEN 470 ELSE PRINT A3$
461 PRINT TAB (15) 'C*(2,2)' PRINT TAB (15) 'B*(2,2)
462 PRINT * A M4 g SAMPLE OF NICKEL IS ALLOWED TO REACT WITH CARBON MONOXIDE (CO).
463 PRINT * CALCULATE THE NUMBER OF MOLES OF CO NEEDED TO PRODUCE THE REACTION.
465 A(7) = (INT(M4*6.78))/100
470 IF Z<8 THEN 480 ELSE PRINT A3$
471 PRINT TAB (15) 'C*(3,2)' PRINT TAB (15) 'B*(3,2)
472 PRINT * CALCULATE THE NUMBER OF GRAMS OF AMMONIUM DICHROMATE NECESSARY TO PRODUCE.
473 PRINT V2 'LITERS OF NITROGEN AT STP.'
475 A(8) = (INT (276000*V2/22.4))/100
480 IF Z<9 THEN 490 ELSE PRINT A3$
481 PRINT TAB (15) 'C*(4,2)' PRINT TAB (15) 'B*(4,2)
482 PRINT * HOW MANY MOLES OF HYDROGEN FLUORIDE COULD BE PRODUCED BY THE REACTION
485 INT (M2 g MOLES OF KRYPTON (Kr) DIFLUORIDE AND WATER?
490 A(9) = (INT (M2*200))/100
190 IF Z%<>10 THEN 600 ELSE PRINT A3$:"PRINT " 
191 PRINT TAB(15)"C$(5.2)";PRINT TAB(15)"B$(5.2)";PRINT" 
192 PRINT "CALCULATE THE NUMBER OF GRAMS OF OXYGEN REQUIRED TO BURN MB ";"PRINT " 
193 PRINT "OF C H OH TO CARBON DIOXIDE (CO.) AND WATER. 
194 PRINT TAB(5)"5";TAB(7)"11";TAB(7)"2";PRINT" 
195 A(10)"=(INT(272.23*M8))/100 
196 IF N1%<1 THEN 699 ELSE 750 
197 C1=0:IF Z%<10 THEN 800 
196 NEXT Z% 
198 PRINT/PRINT/INPUT "YOUR ANSWER ";"&B(Z%) 
199 PRINT IF (ABS(A(Z%)-B(Z%)))>.01 THEN 780 ELSE PRINT "CORRECT !!" 
200 S=S+1:PRINT\GOTO 699 
201 C1=C1+1:IF C1<1 THEN PRINT "YOU ARE INCORRECT, TRY AGAIN. ELSE PRINT " 
202 IF C1=1 THEN 750 
203 IF Z%=5 THEN PRINT "liters" ELSE IF Z%=6 THEN PRINT "grams" ELSE IF Z%=2 THEN PRINT "moles" ELSE IF Z%=3 THEN PRINT "moles" ELSE IF Z%=7 THEN PRINT "moles" ELSE IF Z%=9 THEN PRINT "moles" 
204 IF Z%=1 THEN PRINT "liters" ELSE IF Z%=6 THEN PRINT "grams" ELSE IF Z%=4 THEN PRINT "grams" ELSE IF Z%=10 THEN PRINT "grams" \GOTO 699 
205 GOTO 699 
300 PRINT/PRINT/PRINT "A1$" HAS ENDED THIS SESSION AT "TIME$(O)"." \PRINT 
301 PRINT "A1$" HAS ANSWERED "S" QUESTIONS CORRECTLY." \PRINT 
302 PRINT "HERE ARE THE CORRECT ANSWERS AND "A1$" S ANSWERS." 
303 PRINT/PRINT/PRINT 
304 PRINT TAB(8)"PROBLEM";TAB(28)"CORRECT ANSWER";TAB(58)"STUDENT S ANSWER" 
305 PRINT TAB(8)"*";TAB(28)"*";TAB(58)"***********" \PRINT/PRINT 
310 FOR J%=1 TO 10 
311 IF J%<10 THEN PRINT TAB(10)"J%";ELSE PRINT TAB(9)"J%"; 
312 PRINT TAB(32)"A(J%)";TAB(63)"B(J%)" 
315 NEXT J% 
3000 END
LHE808: 13:36
19-APR-77
1 REM - THIS IS A PRACTICE SESSION IN GAS LAWS. >>>>>>>>>>>>>>>>>>>>
2 ! THIS PROGRAM HAS BEEN DEVELOPED BY DR. JULIO GALLARDO, OF HOSTOS COMMUNITY
3 COLLEGE, AND WAS SUBSIDIZED BY A GRANT FROM THE NATIONAL SCIENCE FOUNDATION.
4 INPUT \* \* \* CODE: \* \* \* \* N2 \PRINT \PRINT \PRINT.
5 ! N2=1 WILL GIVE A PRINT OUT OF THE PROBLEMS WITH ANSWERS
6 IF N2=1 THEN 49
7 ! N1$ WILL BE THE STUDENT'S NAME WHILE S1$ WILL BE HIS SOCIAL SECURITY NUMBER
8 DIM A(15):B(15)
9 INPUT "AFTER THE QUESTION MARK (?), TYPE YOUR NAME, " ;N1$
10 PRINT
11 INPUT "AFTER THE QUESTION MARK (?), TYPE YOUR SOCIAL SECURITY NUMBER, " ; S1$
12 PRINT
13 INPUT "YOUR NAME IS, *N1$ * AND YOUR SOCIAL SECURITY NUMBER, " \PRINT
14 PRINT "IS, " ; S1$. ARE THEY CORRECT? TYPE 'YES' OR 'NO', " ;
15 PRINT
16 INPUT S2$ \PRINT
17 IF S2$='NO' THEN 12 ELSE IF S2$<>'YES' THEN PRINT " TYPE 'YES' OR 'NO' ONLY, " \PRINT.
18 IF S2$<>'YES', THEN 12
19 Z1=1
20 RANDOMIZE
21 FOR Z= Z1 TO 15
22 T1=<INT(1000*RND+500)> /10 \PRINT
23 T2=<INT(1000*RND+400)> /10 \PRINT
24 ! T1 AND T2 ARE TEMPERATURES WITH VALUES BETWEEN 50 AND 150 DEGREES
25 P1=<INT(7000*RND+5000)> /10 \PRINT
26 P2=<INT(8000*RND+4000)> /10 \PRINT
27 ! P1 AND P2 ARE VALUES OF PRESSURE BETWEEN 400 AND 1500
28 P3=<INT(7000*RND+8000)> /10 \PRINT
29 ! P3 IS ANOTHER VALUE OF PRESSURE BETWEEN 400 AND 1500
30 P4=<INT(40*RND+15)> /10 \PRINT
31 P5=<INT(45*RND+16)> /10 \PRINT
32 ! P4 AND P5 ARE VALUES OF PRESSURE IN ATM
33 V1=<INT(10000*RND+2000)> /10 \PRINT
34 V2=<INT(10000*RND+2000)> /10 \PRINT
35 ! V1 AND V2 ARE VALUES OF VOLUME IN MILLILITERS AND V3 IN LITERS
36 A1$="CENTIGRADE"; A2$="FAHRENHEIT"; A3$="KELVIN"; A4$="TORR"; A5$="ATM"; A6$="MILLILITERS"; A7$="LITERS"
37 A8$="DEGREES"
38 PRINT \PRINT "PROBLEM: " ;Z IF Z<10 THEN PRINT " * * * * * * * *" ELSE PRINT " * E
39 PRINT \PRINT "\* E
40 PRINT \PRINT "\* E
41 IF Z<>1 THEN 10 ELSE PRINT "THE TEMPERATURE OF AN OBJECT IS " ; T1$ DEGREES; "A$1$"
42 PRINT "EXPRESS THIS TEMPERATURE IN " ; A8$;" A2$"
43 A11=1/(INT(PNB(T1)\100)) /100 \PRINT
44 IF Z<>1 THEN 110 ELSE PRINT "A GAS EXERTS A PRESSURE OF" ; P1$;" A4$"; "GIVE THIS
45 PRESSURE IN" ; A5$; "A6$"
46 A12= (INT(100*P1/760))/100 \PRINT
47 IF Z<>3 THEN 120 ELSE PRINT "WHEN THE TEMPERATURE OF A GAS IS" ; T1$;" A8$";" A1$"
48 THEN
49 PRINT "THE PRESSURE IS" ; P1$;" A4$"; IF THE TEMPERATURE CHANGES TO" ; T2$
50 PRINT "WHAT WOULD THE NEW PRESSURE BE?"
51 A13=(INT(100*P1*(T2+273))\(T1+273))/100 \PRINT
52 IF Z<>4 THEN 125 ELSE PRINT "A GAS OCCUPIES A VOLUME OF" ; V1$;" A6$"; "WHEN THE T
53 TEMPERATURE IS"
54 PRINT "T1$ A8$"; "A1$". FIND THE VOLUME WHEN THE TEMPERATURE OF THE" ; A12$; "A4$"
55 PRIN
40
126 PRINT "WHAT WOULD BE THE VOLUME OF THE SAME GAS IF THE PRESSURE IS CHANGED TO?"

127 PRINT P2/"A4$"."

128 A(5)=(INT(100*P1*V1/P2))/100

130 IF Z<6 THEN 140 ELSE PRINT "THE PRESSURE OF A GAS IS"P5/"A5$" WHEN THE TEMPERATURE IS"T1"

131 PRINT "A8$"/A2$. WHAT WOULD THE PRESSURE BE IF THE TEMPERATURE CHANGES TO"T2" "A8$"/A2$ ."

135 A(6)=(INT(100*P5*(FNC(T2)+273)/(FNC(T1)+273)))/100

140 IF Z<7 THEN 150 ELSE PRINT "WHAT WOULD THE TEMPERATURE OF"V1/"A6$" OF A GAS BE?

141 PRINT "IF"V2/"A6$" OF THE SAME GAS HAVE A TEMPERATURE OF"T1"

142 PRINT "A8$"/A2$. WHEN THE TEMPERATURE.

145 A(7)=(INT(100*V1*(FAC(T1)+273)/(FAC(T2)+273)))/100

150 IF Z<8 THEN 155 ELSE PRINT WHAT WOULD THE TEMPERATURE OF"V1/"A6$" AT"P4/"A5$, CALCULATE ITS VOLUME .

151 PRINT "AT"P5/"A5$."

156 PRINT "AT"P5/"A5$."

159 A(9)=(INT(100*P4*V1/P5))/100

160 IF Z<10 THEN 165 ELSE PRINT "A SAMPLE OF GAS HAS A VOLUME OF"V1/"A6$" WHEN MEASURED .

161 PRINT "AT"T1/"A8$"AND"P1/"A4$. WHAT VOLUME WILL IT OCCUPY AT THE SAME TEMPERATURE AND"P2/"A4$. ?"

164 A(10)=(INT(100*V1*P1/P2))/100

165 IF Z<11 THEN 170 ELSE PRINT "A SAMPLE OF GAS OCCUPIES"V1/"A6$" AT"T1/"A8$"/A1$."

166 PRINT "AND"P1/"A4$. WHAT VOLUME WILL IT HAVE AT"T2/"A8$"/A1$."

169 A(11)=(INT(100*V1*(T1+273)/(T2+273)))/100

170 IF Z<12 THEN 175 ELSE PRINT "A SAMPLE OF GAS OCCUPIES"V3/"A7$, AT"T1/"A8$"/A2$. ."

171 PRINT "CALCULATE ITS VOLUME WHEN THE TEMPERATURE IS"T2/"A8$"/A2$. ."

174 A(12)=(INT((V1*(FNC(T2)+273)*100)/(FNC(T1)+273)))/100

175 IF Z<13 THEN 180 ELSE PRINT "A SAMPLE OF GAS OCCUPIES"V3/"A7$" AT"T1/"A8$"/A4$. AND"T1"


179 A(13)=(INT(100*P2*(FNC(T1)+273)/P1))/100

185 IF Z<14 THEN 190 ELSE PRINT "A CERTAIN GAS OCCUPIES A VOLUME OF"V1/"A6$" A T"T1/"A8$"

186 PRINT "AND"P1/"A4$. WHAT VOLUME WILL IT OCCUPY AT STP?" .

188 A(14)=(INT(100*V1*P1/(T2+273)/(T1+273)))/(T1+273)/P2))/100

195 IF Z<15 THEN 500 ELSE PRINT "A GAS MEASURES"V1/"A6$" AT STP. CALCULATE ITS PRESSURE IN"A5$ .

196 PRINT "IF ITS VOLUME IS CHANGED TO"V3/"A7$ AND THE TEMPERATURE TO"T1 .

197 PRINT "A8$"/A1$. ."

198 A(15)=(INT((V1*100*(T1+273))/(273*V2)))/100

499 PRINT"PRINT .

500 IF N=1 THEN 1999

301 PRINT

502 INPUT "YOUR ANSWER ----------------->;B(Z)"

503 PRINT

505 IF (ABS(A(Z)-B(Z)))>.01 THEN 600 ELSE PRINT A9$/S1=S1+1

506 GOTO 1999

507 !S1 COUNTS CORRECT ANSWERS

510 C1=C1+1 IF C1=1 THEN PRINT B3$ ELSE PRINT B3$ ;

505 IF C1=1 THEN 501 ELSE PRINT A(Z) ;


ELSE GOTO 607
001 IF Z=7 THEN PRINT 'A8\$' 'A3$ ELSE IF Z=8 THEN PRINT 'A6$ ELSE IF Z=9 THEN PRINT 'A6$ ELSE IF Z=10 THEN PRINT 'A6$ ELSE IF Z=11 THEN PRINT A6$ ELSE GOTO 608
008 IF Z=12 THEN PRINT 'A7$ ELSE IF Z=13 THEN PRINT 'A8$' 'A1$ ELSE IF Z=14 THEN PRINT 'A6$ ELSE IF Z=15 THEN PRINT 'A5$' GOTO 1999
1999 Z1=Z1+1\PRINT IF Z1=6 THEN 2019 ELSE IF Z1=11 THEN 2019
1014 IF Z>14 THEN 2400
1015 C1=0\NEXT Z
2019 PRINT
2020 PRINT 'IF YOU WISH TO CONTINUE TYPE 'YES', OTHERWISE TYPE 'NO'.';
2021 INPUT S5$
2022 PRINT\PRINT\PRINT
2025 IF S5$="NO" THEN 2400 ELSE 2015
2400 PRINT 'THE STUDENT ' N1$ ' HAS ENDED THIS SESSION. 'N1$
2401 PRINT\PRINT ' HAS ANSWERED ' S1 ' QUESTIONS CORRECTLY. 'PRINT
2405 PRINT ' HERE ARE THE CORRECT ANSWERS AND 'N1$' S ANSWERS:
2499 PRINT\PRINT\PRINT
2500 PRINT TAB(5) "PROBLEM";TAB(18) "CORRECT ANSWER";TAB(40) "STUDENT'S ANSWER"
2502 PRINT TAB(5) "******"; TAB(18) "****************"; TAB(40) "****************
2505 PRINT\PRINT
2510 FOR Z=1 TO Z1-1
2512 PRINT TAB(8)"Z";TAB(25)"A(Z)";TAB(46)"B(Z)
2520 NEXT Z
3000 END
REM - THIS IS A PRACTICE SESSION IN SOLUTIONS.

INPUT " CODE $ " ; NZ
PRINT
REM - THIS PROGRAM HAS BEEN DEVELOPED BY DR. JULIO GALLARDO, OF HOSTOS COMMUNITY COLLEGE, AND WAS SUBSIDIZED BY A GRANT FROM THE NATIONAL SCIENCE FOUNDATION.

INPUT " AFTER THE QUESTION MARK (?), TYPE YOUR NAME. " ; A5$
PRINT
INPUT " AFTER THE QUESTION MARK (?), TYPE YOUR SOCIAL SECURITY NUMBER. " ; S1$
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163 PRINT "ARE NECESSARY TO YIELD \(X5\) GRAMS OF SILVER NITRATE?"
170 IF Z<>8 THEN 180 ELSE PRINT "CALCULATE THE WEIGHT OF ANHYDROUS HCl IN \(X5\) 
mL OF CONCENTRATED"
171 PRINT "HYDROCHLORIC ACID OF DENSITY 1.19g/mL AND CONTAINING \(Y1\)% HCl"
172 PRINT "BY WEIGHT."
175 A(8)=(INT(X5*1.19*Y1))/100
180 IF Z<>9 THEN 200 ELSE PRINT "WHAT IS THE MOLALITY OF A SOLUTION WHICH CONTAINS \(X6\) " 
"s OF CANE?
181 PRINT "SUGAR, C H O , DISSOLVED IN \(X1\) GRAMS OF WATER?"
185 A(9)=(INT(1000*X6/(342*X1)))/1000
200 IF Z<>10 THEN 210 ELSE PRINT "CALCULATE THE VOLUME OF CONCENTRATED SULFURIC 
ACID, OF DENSITY 1.84g/mL"
201 PRINT "AND CONTAINING \(Y2\)% OF SULFURIC ACID BY WEIGHT, THAT WOULD CONTAIN " 
202 PRINT \(X5\) GRAMS OF PURE SULFURIC ACID."
205 A(10)=(INT(10000*X5/(Y2*1.84)))/100
210 IF Z<>11 THEN 220 ELSE PRINT "CALCULATE THE PERCENT OF THE SOLUTE IN A SOLUT 
ION THAT CONTAINS \(Y1\)g."
211 PRINT "OF POTASSIUM CARBONATE IN \(X2\)g OF WATER."
215 A(11)=(INT(10000*X1/Y2))/100
220 IF Z<>12 THEN 230 ELSE PRINT "CALCULATE THE GRAMS OF WATER THAT MUST BE ADDE 
D TO \(X5\) GRAMS OF "
221 PRINT "POTASSIUM IODIDE IN THE PREPARATION OF A \(Y1\) PERCENT POTASSIUM " 
222 PRINT "IODIDE SOLUTION."
225 A(12)=(INT(100000*X1*(100-Y1))/Y2))/100
230 IF Z<>13 THEN 240 ELSE PRINT "CALCULATE THE MOLALITY OF A SOLUTION CONTAININ 
G \(X5\)g OF SULFURIC"
231 PRINT "ACID IN \(X1\)g OF WATER."
235 A(13)=(INT(1000000*X5/(98*X1)))/100
240 IF Z<>14 THEN 250 ELSE PRINT "HOW MANY GRAMS OF SOLUTE ARE NEEDED TO PREPARE " 
"\(X2\)g OF A "
241 PRINT \(Y1/100\) " MOLAL SOLUTION OF ETHYLENE GLYCOL (C H O )?"
245 PRINT "2 6 2"
249 A(14)=(INT(62*X1*X2/(1000+62*Y1)))/100
250 IF Z<>15 THEN 260 ELSE PRINT "CALCULATE THE NUMBER OF GRAMS OF WATER THAT M 
UST BE ADDED TO \(Y1/25 
251 PRINT "MOLES OF PRESTONE (C H O ) IN THE PREPARATION OF A \(Y2\)m SOLUTION."
252 PRINT "2 6 2"
255 A(15)=(INT(1000000*X1/(25*Y2)))/100
260 PRINT IF NZ=1 THEN '1999 " 
261 INPUT "YOUR ANSWER " "
265 IF ABS(A(Z)-B(Z))>1 THEN 399 ELSE 499
399 PRINT "YOU ARE INCORRECT. TRY AGAIN. ELSE PRINT "Y 
OU ARE WRONG AGAIN. THE CORRECT ANSWER IS " " A(Z); 
401 IF C1=1 THEN 260
402 IF Z=2 THEN PRINT "Z" ELSE IF Z=4 THEN PRINT"MOLAL" ELSE IF Z=9 THEN PRINT"MO 
LAL" ELSE IF Z=10 THEN PRINT "m1" ELSE IF Z=13 THEN PRINT "MOLAL" ELSE IF Z=11 TH 
EN PRINT"Z" ELSE PRINT"GRAMS"
403 PRINT
405 IF C1=1 THEN 100 ELSE 1999
499 PRINT "CORRECT !!! " \(S1Z=S1Z+1Z 
1997 C1=0 IF Z=5 THEN 2010 ELSE IF Z=10 THEN 2010
2000 NEXT Z
2009 IF Z=15 THEN 2480
2010 PRINT"PRINT\PRINT" IF YOU WISH TO STOP HERE, TYPE \'N\', OTHERWISE, PRESS \'RE 
TURN'. ";
2012 INPUT G$ 
2014 IF G$="N" THEN 2480 ELSE 2000 " 
2016 PRINT\PRINT "A5$ " HAS ENDED THIS SESSION. "A5$ " HAS ANSWERED \(S1Z\) QUESTI 
CORRECTLY."
HERE ARE AS$'S ANSWERS AND THE CORRECT ANSWERS.

PRINT\PRINT\PRINT

PRINT\PRINT

PRINT TAB(8) "PROBLEM";TAB(28) "CORRECT ANSWER";TAB(58) "STUDENT'S ANSWER"

PRINT TAB(8) "*******";TAB(28) "*******";TAB(58) "*******";TAB(58) "*******";TAB(58) "*******"

FOR Z=1 TO 15

IF Z<10 THEN PRINT TAB(11) "Z"

IF Z>9 THEN PRINT TAB(10) "Z"

PRINT TAB(31) "A(Z)";TAB(45) "B(Z)"

NEXT Z

END
1 REM - THIS IS A PRACTICE SESSION IN SOLUTIONS.

2 ! THIS PROGRAM HAS BEEN DEVELOPED BY DR. JULIO BARRADO, OF HOSTOS COMMUNITY
3 COLLEGE, AND WAS SUBSIDIZED BY A GRANT FROM THE NATIONAL SCIENCE FOUNDATION.

10 INPUT " CODE "$;"0%"PRINT"PRINT
11 IF Z$=1 THEN 45
15 INPUT " AFTER THE QUESTION MARK (?), TYPE YOUR NAME, "; A1$
16 PRINT " AFTER THE QUESTION MARK (?), TYPE YOUR SOCIAL SECURITY NUMBER. "; A2$
19 PRINT PRINT " A2$, ARE THEY CORRECT? "$PRINT
20 INPUT " TYPE 'Y' FOR YES AND 'N' FOR NO "; A3$
21 PRINT IF A3$="N" THEN 15 ELSE IF A3$="Y" THEN 50
22 PRINT PRINT " TYPE 'Y' OR 'N' ONLY, "$PRINT\GOTO 20

45 DIM A(15), B(15)
50 FOR A=1 TO 15
51 RANDOMIZE
53 PRINT PRINT "Z7.5(107.:THEN PRINT °
56 PRINT PRINT "Z7.5(107.:THEN PRINT °
57 PRINT PRINT "Z7.5(107.:THEN PRINT °
58 PRINT PRINT "Z7.5(107.:THEN PRINT °
59 PRINT PRINT "Z7.5(107.:THEN PRINT °
60 V1=(INT(40550*RND+30500))/100
61 V2=(INT(40555*RND+29555))/100
62 V3=(INT(225*RND+150))/100
63 V4=(INT(225*RND+145))/100
64 M1=(INT(3055*RND+2055))/100
65 M2=(INT(315*RND+2155))/100
66 M1 AND M2 ARE MASSES WITH VALUES BETWEEN 20 AND 50 WITH TWO DECIMALS
67 N1=(INT(1735*RND+15))/100
68 N2=(INT(1725*RND+18))/100
69 N1 AND N2 ARE VALUES OF NORMALITY BETWEEN 0.15 AND 1.75 WITH THREE DECIMALS.
70 P1=INT(3.0*RND+15)
71 P2=INT(0.5*RND+50)
72 P1 AND P2 ARE PERCENTS TO BE USED AS PERCENTS. P1 <45 AND P2 >50
73 M3=(INT(100*RND+49+100*50))/100
74 M4=(INT(100*RND+45+4500))/100
75 N3=INT(8*RND+1)
76 N3 IS A NUMBER BETWEEN 1 AND 3 (INTEGER)
77 IF Z$<>1 THEN 110 ELSE PRINT " CALCULATE THE MOLARITY OF A SOLUTION WHICH CONTAINS: M3 " @ OF ETHYL.
78 PRINT " ALCOHOL (C H O) IN" V1 " m" OF SOLUTION.
79 PRINT TAB(11)"2";TAB(13)"6".
80 A(1%)=(INT(100000*M3/(46*V1)))/100
81 IF Z$<>2 THEN 120 ELSE PRINT " CALCULATE THE NORMALITY OF A SOLUTION WHICH CONTAINS: M1 " % OF SODIUM.
82 PRINT " CARBONATE (Na C O) PER LITER.
83 PRINT TAB(14)"2";TAB(17)"3".
84 A(2%)=(INT(M1*100/53))/100
85 IF Z$<>3 THEN 130 ELSE PRINT " HOW MANY MILLIEQUIVALENTS OF SOLUTE ARE PRESENT IN" V2 " mL OF A" N3 " % SOLUTION?"
86 PRINT " SOLUTION?";
87 A(3%)=(INT(N3*V2*K10))/100
88 IF Z$<>4 THEN 140 ELSE PRINT " HOW MANY GRAMS OF SOLUTE ARE REQUIRED TO PREPARE " V4 " 1 OF A" N2
89 PRINT " SOLUTION OF PHOSPHORIC ACID (H PO )?"
90 PRINT TAB(33)"3";TAB(36)"4".
91 A(4%)=(INT(N2*V4*K9800)/3))/100
92 IF Z$<>5 THEN 150 ELSE PRINT " HOW MANY MILLIEQUIVALENTS ARE THERE IN" V1 " mL OF A" N1 " N SOLUTION OF
PRINT "BARIUM HYDROXIDE (Ba(OH))":"
PRINT TAB(25)"2".
A(2%)=(INT(N1*V1*100))/100
IF Z%>6 THEN 160 ELSE PRINT "WHAT IS THE EQUIVALENT WEIGHT OF ALUMINUM HYDROXIDE (Al(OH))", WHERE:
PRINT TAB(60)"3"
PRINT "ONLY ONE OF THE HYDROXIDE IONS REACT?"
A(6%)=78
IF Z%<7 THEN 170 ELSE PRINT "CALCULATE THE MOLARITY OF A*P1* % CALCIUM NITRATE (Ca(NO3)) SOLUTION".
PRINT TAB(57)"3"+TAB(59)"2".
PRINT "WITH A DENSITY OF" N1 "g/m1.".
A(7%)=(INT(100*P1*N1/164))/100
IF Z%<8 THEN 180 ELSE PRINT "CALCULATE THE NORMALITY OF A SOLUTION CONTAINING M2 G OF SODIUM HYDROXIDE (NaOH) IN V2 mL OF SOLUTION.".
A(8%)=(INT(N2*100000/V2))/100
IF Z%<9 THEN 190 ELSE PRINT "CALCULATE THE MOLARITY OF A SULFURIC ACID SOLUTION OF SPECIFIC GRAVITY.".
PRINT N2 "g/m1 CONTAINING" P1 "% H2 SO4 BY WEIGHT.
PRINT TAB(30)"2"+TAB(33)"4"
A(9%)=(INT(1000*N2*P1/98))/100
IF Z%<10 THEN 200 ELSE PRINT "HOW MANY EQUIVALENTS OF SOLUTE ARE CONTAINED IN V4 mL OF A* N3 * M SOLUTION.
PRINT "TO MAKE " N1 "m1 OF A SULFURIC ACID SOLUTION OF SPECIFIC GRAVITY".
PRINT N2 "g/m1 CONTAINING" P1 "% H2 SO4 BY WEIGHT SHOULD BE USED.
PRINT TAB(17)"2";TAB(30)"4".
PRINT "IN A REACTION THAT ONLY REPLACES TWO HYDROGEN IONS."
A(12%)=(INT(N2*300/2))/100
IF Z%<13 THEN 230 ELSE PRINT "CALCULATE THE NUMBER OF GRAMS OF SOLUTE NEEDED TO PROVIDE M4 g OF"
PRINT N2 "m1 OF A* N2 * M SODIUM SULFATE (Na2SO4) SOLUTION."
A(13%)=(INT(N2*V2*142/10))/100
IF Z%<14 THEN 240 ELSE PRINT "CALCULATE THE NUMBER OF mL OF SOLUTION REQUIRED TO MAKE M4 g OF"
PRINT N2 "m1 OF A SULFURIC ACID (H2 SO4) SOLUTION FROM A* N3 * N SOLUTION IN A REACTION THAT REPLACES".
PRINT TAB(17)"2"+TAB(20)"4".
PRINT "ONLY ONE HYDROGEN ION."
A(14%)=(INT(M4*100000/98*N3))/100
IF Z%<15 THEN 250 ELSE PRINT "A HYDROCHLORIC ACID SOLUTION IS APPROXIMATELY P1 % HYDROCHLORIC ACID (HCl)"
PRINT "AND ITS DENSITY IS" N1 "g/m1. CALCULATE THE NORMALITY OF THE HYDROCHLORIC ACID (HCl) SOLUTION".
A(15%)=(INT(1000*P1*N1/36.45))/100
IF Z%<16 THEN 1999
PRINT "YOU ARE INCORRECT. TRY AGAIN." ELSE PRINT "YOU ARE WRONG AGAIN. THE CORRECT ANSWER IS";
PRINT B(Z%)".
INPUT YOUR ANSWER:";
C(1)=C(1)+1
IF C(1)=1 THEN PRINT "YOU ARE INCORRECT. TRY AGAIN. ELSE PRINT;
A(Z%)";
C(1)=C(1)+1
IF C(1)=1 THEN 300
02 IF n=1 THEN PRINT " m" ELSE IF Z%=2 THEN PRINT " N" ELSE IF Z%=3 THEN PRINT " A" ELSE IF Z%=4 THEN PRINT " B" ELSE IF Z%=5 THEN PRINT " EQUIV." ELSE 4

03 IF Z%=6 THEN PRINT " N" ELSE IF Z%=7 THEN PRINT " T" ELSE IF Z%=8 THEN PRINT " M" ELSE IF Z%=9 THEN PRINT " m" ELSE IF Z%=10 THEN PRINT " EQUIV." ELSE IF Z%=11 THEN PRINT " m1" ELSE 404

04 IF Z%=12 THEN PRINT " N" ELSE IF Z%=13 THEN PRINT " Z" ELSE IF Z%=14 THEN PRINT " m1" ELSE IF Z%=15 THEN PRINT " N" ELSE IF Z%=16 THEN PRINT " t

05 PRINT\PRINT\GOTO'1999
99 PRINT " " \"CORRECT !! ! S1%=S1%+1\"\n999 C1=0\IF Z%=5 THEN 2010 ELSE 2010 ELSE IF Z%=15 THEN 2010 ELSE IF Z%=20 THEN 2010
000 NEXT Z%
009 IF Z%=15 THEN 2480
010 PRINT\PRINT\PRINT... IF YOU WISH TO STOP HERE, TYPE 'Y' OTHERWSE PESS 'RETURN'. ";
012 INPUT Q$
014 IF Q$="Y" THEN 2480 ELSE 2000
1480 PRINT\PRINT\PRINT
1481 PRINT \"A1$\" HAS ENDED THIS SESSION. \"A1$\" HAS ANSWERED \"S.\" QUESTIONS CORRECTLY.
1485 PRINT\PRINT\PRINT \HERE ARE THE CORRECT ANSWERS AND \"A1$\"'S ANSWERS.
1488 PRINT\PRI
2500 PRINT TAB(3)\"PROBLEM\TA(28)\"CORRECT ANSWER\TA(35)\"STUDENT'S ANSWER\n2501 PRINT TAB(3)\"*****\TA(28)\"****** *********** TA(35)*********** *****\n
2505 FOR j%=1 TO Z%
2506 IF j%<10 THEN PRINT 3(11)\"J%\n2507 IF j%<9 THEN PRINT 10\"J%\n2510 PRINT TAB(3)\"A(J%)\TA(65)\"B(J%)
2511 NEXT J%
3000 END

reads
REM - THIS IS A PRACTICE SESSION IN GAS LAWS. >>>>>>>>>>>>>>>>>>>

! THIS PROGRAM HAS BEEN DEVELOPED BY DR. JULIO GALLARDO AND MS. STEVEN DELGADO, OF HOSTOS COMMUNITY COLLEGE, AND WAS SUBSIDIZED BY A GRANT FROM THE NATIONAL SCIENCE FOUNDATION.

PRINT\PRINT\PRINT\PRINT * IF YOU WISH TO GO TO A MORE DIFFICULT SET OF PROBLEMS (GEN. CHEM.), TYPE 'PRINT ' THE LETTER 'H' OTHERWISE PRESS THE <RETURN> KEY.*;

INPUT S7$;IF S7$='H' THEN GAIN *CHE038* ELSE S7$\PRINT\PRINT\PRINT\PRINT\PRINT \CODE $; N2;PRINT;PRINT\PRINT

* N2=1 WILL GIVE A PRINT OUT OF THE PROBLEMS WITH ANSWERS

IF N2=1 THEN 49

! N1$ WILL BE THE STUDENT'S NAME WHILE S1$ WILL BE HIS SOCIAL SECURITY NUMBER

DIM A(10);B(10)

INPUT * AFTER THE QUESTION MARK (?), TYPE YOUR NAME, * ;N1$

PRINT

INPUT * AFTER THE QUESTION MARK (?), TYPE YOUR SOCIAL SECURITY NUMBER, * ; S1$

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115 IF Z<>4 THEN 120 ELSE PRINT "WHAT VOLUME WILL 3 LITERS OF HELIUM MEASURE AT T2 °C OCCUPY?"
116 PRINT " AT" T1 °C? 
117 A(4)=(INT(100*V3*(T1+273))/(T2+273))/.0
120 IF Z<>5 THEN 125 ELSE PRINT "A STEEL TANK CONTAINS CARBON DIOXIDE AT T1 °C AND A PRESSURE OF P4 "ATM"
121 PRINT " DETERMINE THE INTERNAL PRESSURE WHEN THE TANK IS HEATED TO T2 °C."
122 A(5)=(INT(100*P4*(T2+273)/(T1+273)))/100
125 IF Z<>6 THEN 130 ELSE PRINT "GIVEN V: "LITERS OF AMMONIA AT T1 °C AND P1 "TORR, DETERMINE ITS"
126 PRINT " VOLUME AT" T2 °C AND P3 "TORR."
127 A(6)=(INT((10*V3*(T2+273)/(T1+273))*((P3/P1))))/100
130 IF Z<>7 THEN 135 ELSE PRINT "THE VOLUME OF A QUANTITY OF SULFUR DIOXIDE AT T1 °C AND P3 "TORR IS"
131 PRINT " V3 LITERS, CALCULATE ITS VOLUME AT STANDARD CONDITIONS (STP)."
132 A(7)=(INT(100*V3*(T2+273)/(T1+273))*((P3/7676))/100
135 IF Z<>8 THEN 140 ELSE PRINT "A MASS OF HYDROGEN OCCUPIES V4 "LITERS AT T2 °F AND P5 "ATM. FIND ITS"
136 PRINT " VOLUME AT" T2 °F AND P4 "ATM."
137 C(8)=V4*P5*100*(FNC(T1)+273)/((FNC(T2)+273)*P4)
138 A(8)=(INT((C(8))/(D(8)))/100
140 IF Z<>9 THEN 145 ELSE PRINT "TO HOW MANY ATMOSPHERES PRESSURE MUST A LITER OF GAS MEASURED AT T1 °C BE COMPRESSED TO 1/2 LITER WHEN THE TEMPERATURE IS T2 °C?"
141 PRINT " AND T2 °C BE SUBJECT TO BE COMPRESSED TO 1/2 LITER WHEN THE TEMPERATURE IS T1 °C?"
142 PRINT " IS T1 °C?"
144 A(9)=(INT(100*P4*(1/5)*((T2+273)/(T1+273)))/100
145 IF Z<>10 THEN 149 ELSE PRINT "A GIVEN SAMPLE OF A GAS HAS A VOLUME OF V4 "LITERS AT T1 °C AND P2 "TORR. ITS VOLUME AND TEMPERATURE ARE CHANGED TO V3 "LITERS AND" T2 °C."
146 PRINT " T2 °C BE COMPRESSED TO 1/2 LITER WHEN THE TEMPERATURE IS T1 °C?"
147 PRINT " RESPECTIVELY, CALCULATE THE PRESSURE AT THIS CONDITIONS."
149 A(10)=(INT(100*P2*V4*(T2+273)/(T1+273)*V3))/100
149 PRINT "PRINT"
500 Z=0 IF NZ=1 THEN 199
501 PRINT " YOUR ANSWER ----------";B(Z)
502 PRINT " "
503 PRINT " IF ABS(A(Z)-B(Z))>01 THEN 600 ELSE PRINT A9$"S1=S1+1
506 GOTO 199
507 ! S1 COUNTS CORRECT ANSWERS
600 C1=C1+1 IF C1=1 THEN PRINT B2$ ELSE PRINT B3$;
605 IF C1=1 THEN 501 ELSE PRINT A(Z);
606 IF Z=2 THEN PRINT "1": ELSE IF Z=3 THEN PRINT "1": ELSE IF Z=5 THEN PRINT "AT" M": ELSE IF Z=9 THEN PRINT "ATM" ELSE IF Z=10 THEN PRINT "TORR" ELSE PRINT "LITERS".
1999 Z1=Z1+1\PRINT IF Z1=6 THEN 2000 ELSE IF Z1=11 THEN 2014
2014 IF Z=9 THEN 2400
2015 C1=0\NEXT Z
2016 PRINT\PRINT\PRINT" IF YOU WISH TO CONTINUE TO HARDER PROBLEMS TYPE 'Y' ES' OTHERWISE 'NO'.";
2017 INPUT S6$ 
2018 PRINT\PRINT\PRINT IF S6$="NO" THEN 2400 ELSE 2498
2019 PRINT " IF YOU WISH TO CONTINUE TYPE 'YES', OTHERWISE TYPE 'NO'."
2021 INPUT S5$ 
2022 PRINT\PRINT\PRINT IF S5$="NO" THEN 2400 ELSE 2015
2400 PRINT " N1$ HAS ENDED THIS SESSION AT " TIME$(0)". N1$ 
2401 PRINT\PRINT " HAS ANSWERED " S1 " QUESTIONS CORRECTLY. "\PRINT 
2 PRINT " HERE ARE THE CORRECT ANSWERS AND N1$'S ANSWERS: "
250 PRINT\PRINT 
2 PRINT TAR(5) "******** **TAR(14) **TAR(40) "**********
2500 PRINT TAB(5) "PROBLEM " ;TAB(18) CORRECT ANSWER" ;TAB(40) "STUDENT'S ANSWER"
2501 PRINT TAB(5) "******** " ;TAB(18)************* ;TAB(40)*********** ********
2505 PRINT PRINT
2510 FOR Z=1 TO 10
2512 IF Z<10 THEN PRINT TAB(7) "Z" ; ELSE PRINT TAB(6) "Z"
2513 PRINT TAB(24) "A(Z) ; TAB(45) "B(Z)"
2520 NEXT Z
2530 IF S6$="YES" THEN CHAIN*CHEO38* ELSE 3000
5000 END
1. This program has been developed by Dr. Julio Gallardo of Hostos Community College, and was subsidized by a grant from the National Science Foundation.

2. N% = 1 will give a print out of the problems with answers.

3. N% = 1 will be the student's name while S1% will be his social security number.

4. DIM A(15), B(15)

5. PRINT "1. PRINT "YOUR NAME IS "N1%" AND YOUR SOCIAL SECURITY NUMBER "PRINT

6. PRINT "IS "S1%" ARE THEY CORRECT? TYPE 'YES' OR 'NO'."

7. INPUT S2$

8. PRINT IF S2$ = "NO" THEN 12 ELSE IF S2$ <> 'YES' THEN PRINT "TYPE 'YES' OR 'NO' ONLY!!!!" ELSE 27

9. PRINT "GO TO 20"

10. IF FNC(T1) = (5*(T1+32))/9

11. DEF FNC(.T1) = 9*T1/5 + 32

12. IF FNC(T1) = "CORRECT"

13. IF FNC(T1) = "YOU ARE INCORRECT, TRY AGAIN"

14. IF FNC(T1) = "YOU ARE WRONG AGAIN, THE CORRECT ANSWER IS "

15. "9 PRINT 

16. IF Z <> 11 THEN 55 ELSE PRINT "AN IDLING, UNTUNED CAR ENGINE CAN PRODUCE* V2

17. IF Z <> 12 THEN 60 ELSE PRINT "ASSUME THAT YOUR LUNGS CAN HOLD ABOUT* V2 1/M OF A GAS MEASURED AT * T2 °C AND * P3 TORR HAS A MASS OF * M1"

18. PRINT "WHAT IS ITS MOLECULAR MASS?"

19. A(12) = (INT(V2*(T1+273)/(273*T1)))/100

20. IF Z <> 13 THEN 65 ELSE PRINT "IF V2 1/M OF A GAS MEASURED AT T2 °C AND P3 TORR HAS A MASS OF M1"

21. PRINT "WHAT IS ITS MOLECULAR MASS?"

22. A(13) = (INT(M1*6232*1000*(T2+273)/(V2*P3)))/100
.65 IF Z<>14 THEN 170 ELSE PRINT "CALCULATE THE DENSITY OF METHANE (CH₄) AT " T + " C AND P1 " TORR."
.66 PRINT TAB(37) "4"
.67 A(14)=INT(25.67*P1/(273-T1))/100
.70 IF Z<>15 THEN 500 ELSE PRINT "HALOTHANE IS A NONFLAMMABLE, NONIRRITATING, GENERAL ANESTHETIC, AND IN"
.71 PRINT "MANY INSTANCES IS SUPERIOR TO ETHYL ETHER, AT" T1 "C AND P1 " TORR."
.72 PRINT "4 OF THE GAS OCCUPIES A VOLUME OF V1 "mL. ITS COMPOSITION IS 12.2% CARBON, "
.73 PRINT "0.5% HYDROGEN, 40.5% BROMINE, 18.0% CHLORINE, AND 28.9% FLOURINE. CALCULATING"
.74 PRINT "THE MOLEULAR MASS FOR HALOTHANE."
.75 A(15)=INT(M1*622*1000*(T1+273)/(V1*P1)))/100
199 PRINT "PRINT  
100 Z9=0\ IF Z9=1 THEN 1999.
101 PRINT 
102 INPUT "YOUR ANSWER ";A(7)
103 PRINT 
105 IF (ABS(A(Z)-B(Z)))>.01 THEN 600 ELSE PRINT A9\S1=S1+1
106 GOTO 1999
107 IF S1 COUNTS CORRECT ANSWERS
108 C1=C1+1\ IF C1=1 THEN PRINT B2\ ELSE PRINT B3%;
105 IF C1=1 THEN 501 ELSE PRINT A(Z); 
106 IF Z=11 THEN PRINT "moles" ELSE IF Z=12 THEN PRINT "mli" ELSE IF Z=13 THEN PRINT "amu" ELSE IF Z=14 THEN PRINT "g/m1" ELSE IF Z=15 THEN PRINT "amu "
.999 Z1=Z1+1\ PRINT\ IF Z1=16 THEN 2400
104 IF Z>14 THEN 2466
105 CI=0\ NEXT Z
1022 PRINT "PRINT|PRINT  
1400 PRINT "N1$ " HAS ENDED THIS SESSION AT " TIME$(O)"
.1401 PRINT "\ HAS ANSWERED " S1 " QUESTIONS CORRECTLY. "\PRINT
.1405 PRINT "HERE ARE THE CORRECT ANSWERS AND "N1$ "'S ANSWERS: "
1498 PRINT "PRINT|PRINT  
1499 PRINT TAB(5) "***************;TAB(18) "***********************;TAB(40) "**********************
1500 PRINT TAB(5) "PROBLEM ";TAB(18) " CORRECT ANSWER";TAB(40) "STUDENT'S ANSWER"
1501 PRINT TAB(5) "***************;TAB(18) "***********************;TAB(40) "**********************
1505 PRINT |PRINT -
1510 FOR Z = 11 TO 15
1512 PRINT TAB(6) "Z; 
1513 PRINT TAB(24) "A(Z); TAB(45) "B(Z)
1520 NEXT Z
10000 END
HOW MANY PROBLEMS DO YOU WANT? 3

PROBLEM 1

A BRASS BAR WEIGHING 39.45 LBS IS MADE OF 79.08 % ZINC AND THE BALANCE OF COPPER. HOW MANY LBS. OF COPPER DOES IT CONTAIN?

PROBLEM 2

A TRUCK CARRYING 674.12 LBS OF COAL WEIGHED 1464.58 LBS. WHAT PERCENT OF THE TOTAL WEIGHT WAS DUE TO THE WEIGHT OF THE TRUCK?

PROBLEM 3

HOW MANY SHEETS OF METAL 1/8 INCHES THICK ARE THERE IN A FILE 75.54 INCHES HIGH?

DO YOU WANT MORE PROBLEMS? NO

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CORRECT ANSWER</th>
<th>STUDENT ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8.25294</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>53.9718</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>604.32</td>
<td>0</td>
</tr>
</tbody>
</table>
CODE #?

AFTER THE QUESTION MARK (?), TYPE YOUR NAME. ? JOHN DOE
AFTER THE QUESTION MARK (?), TYPE YOUR SOCIAL SECURITY NUMBER. ? 000001977
YOUR NAME IS, JOHN DOE, AND YOUR SOCIAL SECURITY NUMBER
IS, 000001977. ARE THEY CORRECT? TYPE 'Y' FOR YES AND 'N' FOR NO. ? U
TYPE 'Y' OR 'N' ONLY !!!!!!
YOUR NAME IS, JOHN DOE, AND YOUR SOCIAL SECURITY NUMBER
IS, 000001977. ARE THEY CORRECT? TYPE 'Y' FOR YES AND 'N' FOR NO. ? Y
HOW MANY PROBLEMS DO YOU WANT ? 3

**************
PROBLEM 1
**************

A BRASS BAR WEIGHING 56.77 LBS IS MADE OF 48.74 % ZINC AND THE BALANCE OF COPPER. HOW MANY LBS. OF COPPER DOES IT CONTAIN?

YOUR ANSWER ------------> 29.10

CORRECT!!!

**************
PROBLEM 2
**************

A TRUCK CARRYING 988.11 LBS OF COAL WEIGHED 1908.91 LBS. WHAT PERCENT OF THE TOTAL WEIGHT WAS DUE TO THE WEIGHT OF THE TRUCK?

YOUR ANSWER ------------> 4.8

YOU ARE INCORRECT. TRY AGAIN.

YOUR ANSWER ------------> 48

YOU ARE WRONG AGAIN. THE CORRECT ANSWER IS ------------> 48.24

**************
PROBLEM 3
**************

ANY SHEETS OF METAL 1/1 INCHES THICK ARE THERE IN A PILE 62.58 INCHES
YOUR ANSWER                               ? 62.5
YOU ARE INCORRECT, TRY AGAIN.

YOUR ANSWER                               ? 62.58

CORRECT!!!

DO YOU WANT MORE PROBLEMS? NO

THE STUDENT JOHN DOE HAS ENDED THIS SESSION.

JOHN DOE HAS ANSWERED 2 QUESTIONS CORRECTLY.

HERE ARE JOHN DOE'S ANSWERS AND THE CORRECT ANSWERS.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>CORRECT ANSWER</th>
<th>STUDENT ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>29.1003</td>
<td>29.1</td>
</tr>
<tr>
<td>2</td>
<td>48.237</td>
<td>48</td>
</tr>
<tr>
<td>3</td>
<td>62.58</td>
<td>62.58</td>
</tr>
</tbody>
</table>

Ready