

FLORIDA HIGH SCHOOLS COMPUTING COMPETITION '86
JUDGING CRITERIA

1.1 RUN PROGRAM:

OUTPUT: (The screen is cleared and the following is centered)

THIS IS THE EASIEST PROGRAM!

1.2 INPUT: Enter two numbers: 12, -5

Note: (One or two spaces may separate the equal sign and each of the numbers output)

OUTPUT: **SUM = 7**
DIFFERENCE = 17
PRODUCT = -60

INPUT: Enter two numbers: -102, 50

OUTPUT: **SUM = -62**
DIFFERENCE = -152
PRODUCT = -5100

1.3 INPUT: Enter test value E: 0.0001

OUTPUT: **1.291263**

INPUT: Enter test value E: 0.001

OUTPUT: **1.290943**

1.4 INPUT: Enter first name: **JANET**
Enter middle name: **CASPERSON**
Enter last name: **SMITH**
Enter amount: **4567.89**

OUTPUT: *****
* *
* **BEN'S TOWING SERVICE** *
* **4563 WRECKER AVENUE** *
* **WAVERLY, ARKANSAS 45632** *
* *
* **PAY TO THE ORDER OF JANET C. SMITH** *
* *
* **THE SUM OF \$4567.89** *
* *

1.5 RUN PROGRAM:

OUTPUT: CELL 2
CELL 5
CELL 10
CELL 17
CELL 26
CELL 37
CELL 50
CELL 65
CELL 82

1.6 INPUT: Enter monthly investment: 120
Enter end of year deposit: 450
Enter annual rate of interest: 11

OUTPUT: AMOUNT AT END OF YEAR 20 IS \$135685.95

INPUT: Enter monthly investment: 50
Enter end of year deposit: 125
Enter annual rate of interest: 14

OUTPUT: AMOUNT AT END OF YEAR 20 IS \$78523.27

1.7 INPUT: Enter sentence:
PLAYING A BASEBALL GAME INVOLVES NINE INNINGS

OUTPUT: PLAYIN A BASEBALL GAME INVOLVES NINE INNINS

INPUT: Enter sentence: GOING RIDING CAN BE THRILLING

OUTPUT: GOIN RIDIN CAN BE THRILLIN

1.8 INPUT: Enter initial population: 1200
Enter point of over population: 2600

OUTPUT: POPULATION FOR MONTH 1 IS 1440
POPULATION FOR MONTH 2 IS 1728
POPULATION FOR MONTH 3 IS 2074
POPULATION FOR MONTH 4 IS 2488
POPULATION FOR MONTH 5 IS 2986
POPULATION FOR MONTH 6 IS 2538
POPULATION FOR MONTH 7 IS 2157
POPULATION FOR MONTH 8 IS 1834
POPULATION FOR MONTH 9 IS 2201
POPULATION FOR MONTH 10 IS 2641
POPULATION FOR MONTH 11 IS 2245
POPULATION FOR MONTH 12 IS 1908
POPULATION FOR MONTH 13 IS 1622
POPULATION FOR MONTH 14 IS 1946
POPULATION FOR MONTH 15 IS 2335
POPULATION FOR MONTH 16 IS 2802
POPULATION FOR MONTH 17 IS 2382
POPULATION FOR MONTH 18 IS 2025
POPULATION FOR MONTH 19 IS 1721
POPULATION FOR MONTH 20 IS 2065
POPULATION FOR MONTH 21 IS 2478
POPULATION FOR MONTH 22 IS 2974
POPULATION FOR MONTH 23 IS 2528

1.9 INPUT: Enter sentence: GEORGE IS A NATIVE OF EELAND.
OUTPUT: GEEORGEE IS A NATIVEE OF EELAND.

1.10 INPUT: Enter 1 of 12: 1
Enter 2 of 12: 3
Enter 3 of 12: 66
Enter 4 of 12: 9
Enter 5 of 12: 1
Enter 6 of 12: 9
Enter 7 of 12: 11
Enter 8 of 12: 232
Enter 9 of 12: 6
Enter 10 of 12: 1
Enter 11 of 12: 11
Enter 12 of 12: 12

Enter 1 of 11: 1
Enter 2 of 11: 19
Enter 3 of 11: 32
Enter 4 of 11: 5
Enter 5 of 11: 12
Enter 6 of 11: 99
Enter 7 of 11: 33
Enter 8 of 11: 10
Enter 9 of 11: 66
Enter 10 of 11: 2
Enter 11 of 11: 1

OUTPUT: 1 66 12

2.1 INPUT: Enter sentence: **HERE IS A SHORT SENTENCE.**

OUTPUT: (The sentence is to be right-justified on a 65 column line. Spacing between words is approximately uniform.)

HERE IS A SHORT SENTENCE.

2.2 INPUT: Enter total number of X's and -'s: 7
Enter number of X's: 3
Enter number of rows: 14

OUTPUT: **XXX----XXX----XXX----XXX----
 ---XXXX---XXXX---XXXX---XXXX
 XXX----XXX----XXX----XXX----
 ---XXXX---XXXX---XXXX---XXXX
 XXX----XXX----XXX----XXX----
 ---XXXX---XXXX---XXXX---XXXX
 XXX----XXX----XXX----XXX----
 ---XXXX---XXXX---XXXX---XXXX
 XXX----XXX----XXX----XXX----
 ---XXXX---XXXX---XXXX---XXXX
 XXX----XXX----XXX----XXX----
 ---XXXX---XXXX---XXXX---XXXX
 XXX----XXX----XXX----XXX----
 ---XXXX---XXXX---XXXX---XXXX**

2.3 RUN PROGRAM:

OUTPUT: 1) **ENCODE**
2) **DECODE**
3) **END**

INPUT: Choose: 1

Enter message: **THIS IS A BIG SECRET**

OUTPUT: **RASE SE Z XSM EBCWBR**

1) **ENCODE**
2) **DECODE**
3) **END**

INPUT: Choose: 2

Enter message: **RASE SE Z XSM EBCWBR**

OUTPUT: **THIS IS A BIG SECRET**

1) **ENCODE**
2) **DECODE**
3) **END**

INPUT: Choose: 3

OUTPUT: (program terminates)

2.4 INPUT: Enter number 1: 1
Enter number 2: 4
Enter number 3: 7
Enter number 4: 9
Enter number 5: 4
Enter number 6: 5
Enter number 7: 6
Enter number 8: 7
Enter number 9: 8
Enter number 10: 7
Enter number 11: 12
Enter number 12: 11
Enter number 13: 13
Enter number 14: 33
Enter number 15: 1

OUTPUT: **MODE IS 7**

INPUT: Enter number 1: 1
Enter number 2: 2
Enter number 3: 3
Enter number 4: 4
Enter number 5: 5
Enter number 6: 6
Enter number 7: 7
Enter number 8: 8
Enter number 9: 9
Enter number 10: 1
Enter number 11: 2
Enter number 12: 3
Enter number 13: 4
Enter number 14: 5
Enter number 15: 6

OUTPUT: **NO UNIQUE MODE**

2.5 INPUT: Enter original balance: 2345.15
OUTPUT: 1. MAKE A DEPOSIT
2. MAKE A WITHDRAWAL
3. CREDIT INTEREST
4. END
INPUT: Enter option: 1
Enter amount to deposit: 100
OUTPUT: BALANCE BEFORE TRANSACTION \$2,345.15
MAKE A DEPOSIT
NEW BALANCE \$2,445.15
1. MAKE A DEPOSIT
2. MAKE A WITHDRAWAL
3. CREDIT INTEREST
4. END
INPUT: Enter option: 2
Enter amount to withdraw: 50
OUTPUT: BALANCE BEFORE TRANSACTION \$2,445.15
MAKE A WITHDRAWAL
NEW BALANCE \$2,395.15
1. MAKE A DEPOSIT
2. MAKE A WITHDRAWAL
3. CREDIT INTEREST
4. END
INPUT: Enter option: 3
OUTPUT: BALANCE BEFORE TRANSACTION \$2,395.15
CREDIT INTEREST OF \$ 13.97
NEW BALANCE \$2,409.12
1. MAKE A DEPOSIT
2. MAKE A WITHDRAWAL
3. CREDIT INTEREST
4. END
INPUT: Enter option: 1
Enter amount to deposit: 600
OUTPUT: BALANCE BEFORE TRANSACTION \$2,409.12
MAKE A DEPOSIT
NEW BALANCE \$3,009.12
1. MAKE A DEPOSIT
2. MAKE A WITHDRAWAL
3. CREDIT INTEREST
4. END
INPUT: Enter option: 4
OUTPUT: FINAL BALANCE \$3,009.12

2.6 INPUT: ENTER FIRST NUMBER: 23765879734265436854
ENTER SECOND NUMBER: 65487904235412345876

OUTPUT: SUM IS 89253783969677782730

INPUT: ENTER FIRST NUMBER: 91234567890123456789012345678901234
ENTER SECOND NUMBER: 9234432101234543210123454321012345

OUTPUT: SUM IS 100468999991357999999135799999913579

2.7 RUN PROGRAM:

OUTPUT: 1 CENTIMETERS TO INCHES 7 GRAMS TO OUNCES
2 INCHES TO CENTIMETERS 8 OUNCES TO GRAMS
3 METERS TO FEET 9 KILOGRAMS TO POUNDS
4 FEET TO METERS 10 POUNDS TO KILOGRAMS
5 KILOMETERS TO MILES 11 LITERS TO GALLONS
6 MILES TO KILOMETERS 12 GALLONS TO LITERS
13 END

INPUT: Enter option: 6
Enter number of MILES: 130

OUTPUT: THIS IS EQUIVALENT TO 209.209 KILOMETERS

OUTPUT: 1 CENTIMETERS TO INCHES 7 GRAMS TO OUNCES
2 INCHES TO CENTIMETERS 8 OUNCES TO GRAMS
3 METERS TO FEET 9 KILOGRAMS TO POUNDS
4 FEET TO METERS 10 POUNDS TO KILOGRAMS
5 KILOMETERS TO MILES 11 LITERS TO GALLONS
6 MILES TO KILOMETERS 12 GALLONS TO LITERS
13 END

INPUT: Enter option: 5
Enter number of KILOMETERS: 209.209

OUTPUT: THIS IS EQUIVALENT TO 130.000 MILES

OUTPUT: 1 CENTIMETERS TO INCHES 7 GRAMS TO OUNCES
2 INCHES TO CENTIMETERS 8 OUNCES TO GRAMS
3 METERS TO FEET 9 KILOGRAMS TO POUNDS
4 FEET TO METERS 10 POUNDS TO KILOGRAMS
5 KILOMETERS TO MILES 11 LITERS TO GALLONS
6 MILES TO KILOMETERS 12 GALLONS TO LITERS
13 END

INPUT: Enter option: 7
Enter number of GRAMS: 64

OUTPUT: THIS IS EQUIVALENT TO 2.257 OUNCES

(Output for 2.7 Continued)

OUTPUT: 1 CENTIMETERS TO INCHES 7 GRAMS TO OUNCES
2 INCHES TO CENTIMETERS 8 OUNCES TO GRAMS
3 METERS TO FEET 9 KILOGRAMS TO POUNDS
4 FEET TO METERS 10 POUNDS TO KILOGRAMS
5 KILOMETERS TO MILES 11 LITERS TO GALLONS
6 MILES TO KILOMETERS 12 GALLONS TO LITERS
13 END

INPUT: Enter option: 8
Enter number of OUNCES: 2.257496

OUTPUT: THIS IS EQUIVALENT TO 64.0 GRAMS

OUTPUT: 1 CENTIMETERS TO INCHES 7 GRAMS TO OUNCES
2 INCHES TO CENTIMETERS 8 OUNCES TO GRAMS
3 METERS TO FEET 9 KILOGRAMS TO POUNDS
4 FEET TO METERS 10 POUNDS TO KILOGRAMS
5 KILOMETERS TO MILES 11 LITERS TO GALLONS
6 MILES TO KILOMETERS 12 GALLONS TO LITERS
13 END

INPUT: Enter option: 11
Enter number of LITERS: 3.7

OUTPUT: THIS IS EQUIVALENT TO 0.977 GALLONS

OUTPUT: 1 CENTIMETERS TO INCHES 7 GRAMS TO OUNCES
2 INCHES TO CENTIMETERS 8 OUNCES TO GRAMS
3 METERS TO FEET 9 KILOGRAMS TO POUNDS
4 FEET TO METERS 10 POUNDS TO KILOGRAMS
5 KILOMETERS TO MILES 11 LITERS TO GALLONS
6 MILES TO KILOMETERS 12 GALLONS TO LITERS
13 END

INPUT: Enter option: 12
Enter number of GALLONS: 0.9774396

OUTPUT: THIS IS EQUIVALENT TO 3.700 LITERS

OUTPUT: 1 CENTIMETERS TO INCHES 7 GRAMS TO OUNCES
2 INCHES TO CENTIMETERS 8 OUNCES TO GRAMS
3 METERS TO FEET 9 KILOGRAMS TO POUNDS
4 FEET TO METERS 10 POUNDS TO KILOGRAMS
5 KILOMETERS TO MILES 11 LITERS TO GALLONS
6 MILES TO KILOMETERS 12 GALLONS TO LITERS
13 END

INPUT: Enter option: 13

OUTPUT: (program terminates)

2.8 INPUT: Enter principal: 12000
 Enter % rate of interest: 13
 Enter term in years: 3
 Enter # of month in year for first payment: 10

OUTPUT: INTEREST PRINCIPAL
 \$130.00 \$11725.67
 \$127.03 \$11448.37
 \$124.02 \$11168.07

YEAR'S INTEREST \$ 381.05

\$120.99 \$10884.73
 \$117.92 \$10598.32
 \$114.82 \$10308.81
 \$111.68 \$10016.16
 \$108.51 \$ 9720.34
 \$105.30 \$ 9421.32
 \$102.06 \$ 9119.05
 \$ 98.79 \$ 8813.52
 \$ 95.48 \$ 8504.67
 \$ 92.13 \$ 8192.47
 \$ 88.75 \$ 7876.90
 \$ 85.33 \$ 7557.90

YEAR'S INTEREST \$ 1241.76

\$ 81.88 \$ 7235.45
 \$ 78.38 \$ 6909.51
 \$ 74.85 \$ 6580.04
 \$ 71.28 \$ 6246.99
 \$ 67.68 \$ 5910.34
 \$ 64.03 \$ 5570.04
 \$ 60.34 \$ 5226.06
 \$ 56.62 \$ 4878.35
 \$ 52.85 \$ 4526.87
 \$ 49.04 \$ 4171.58
 \$ 45.19 \$ 3812.45
 \$ 41.30 \$ 3449.42

YEAR'S INTEREST \$ 743.44

\$ 37.37 \$ 3082.46
 \$ 33.39 \$ 2711.53
 \$ 29.38 \$ 2336.57
 \$ 25.31 \$ 1957.56
 \$ 21.21 \$ 1574.44
 \$ 17.06 \$ 1187.17
 \$ 12.86 \$ 795.70
 \$ 8.62 \$ 399.99
 \$ 4.33 \$ 0.00

YEAR'S INTEREST \$ 189.53
 TOTAL INTEREST \$ 2555.79
 MONTHLY PAYMENT \$ 404.33

2.9 INPUT: Enter N degrees: 150

OUTPUT: **PARTIAL SUM = 0.4999578**
ACTUAL SINE = 0.5000000

INPUT: Enter N degrees: 225

OUTPUT: **PARTIAL SUM = -0.7070960**
ACTUAL SINE = -0.7071068

2.10 INPUT: Enter Roman Numeral: **MCMLXXXVI**

OUTPUT: **ARABIC = 1986**

INPUT: Enter Roman Numeral: **CDXLIX**

OUTPUT: **ARABIC = 449**

3.1 RUN PROGRAM:

OUTPUT: (after a month is displayed with its name approximately centered, press any key to clear the screen and the next month will display):

1986

JANUARY

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEBRUARY

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MARCH

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APRIL

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

(Output continues on next page)

(Output continued)

MAY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUNE

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JULY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

AUGUST

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPTEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

(Output continues on next page)

(Output continued)

OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

NOVEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DECEMBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

3.2 INPUT: Enter coefficients A,B,C,D,E,F: 1, -5, 8, 5, -9, 6
 OUTPUT: **ROOT IS -1.15078**

INPUT: Enter coefficients A,B,C,D,E,F: 2, -6, -7, -8, -9, -10
 OUTPUT: **ROOT IS 4.15395**

3.3 INPUT: Enter base A: 14
 Enter base B: 7
 Enter original number: **C3B7B8**

OUTPUT: **C3B78 BASE 14 EQUALS 110051321 BASE 7**

INPUT: Enter base A: 8
 Enter base B: 24
 Enter original number: **76543210**

OUTPUT: **76543210 BASE 8 EQUALS 21CKG8 BASE 24**

3.4 INPUT: Enter SSN: 564783219
 Enter C for charge or P for payment: C
 Enter amount of transaction: 10

OUTPUT: NEW BALANCE IS \$2,355.89

INPUT: Enter SSN: 543876543
 Enter C for charge or P for payment: P
 Enter amount of transaction: 1234.56

OUTPUT: NEW BALANCE IS \$1279.74

INPUT: Enter SSN: 345212342
 Enter C for charge or P for payment: P
 Enter amount of transaction: 543.21

OUTPUT: NEW BALANCE IS \$3999.30

INPUT: Enter SSN: 000000000

SSN	NAME	ADDRESS	BALANCE
873421765	TIM JONES	2387 PALM PLACE NOME ALASKA 77643	\$6754.76
345212342	AL BROWN	PO BOX 234 TINSEL TOWN CALIFORNIA 77654	\$3999.30
564783219	GAIL HUSTON	543 SOUTH THIRD BIG TOWN TEXAS 88642	\$2355.89
543876543	JILL RUPERT	4536 123RD STREET TINY TOWN MAINE 76765	\$1279.74
234567890	JOHN SMITH	1234 ANYWHERE LANE EXIST KANSAS 66754	\$ 345.78
565656565	KERMIT TEU	1234 LOST LANE WIMPLE WISCONSIN 66543	\$ 78.36

3.5 INPUT: Enter first number: 5678.90123456789
 Enter second number: 562.98765

OUTPUT: PRODUCT = 3197151.2606314751565585

INPUT: Enter first number: 987654.321
 Enter second number: 123.4567890123

OUTPUT: PRODUCT = 121932631.1247834171483

3.6 INPUT: Enter number: 23
 OUTPUT: **55 IS A PALINDROME**

INPUT: Enter number: 187
 OUTPUT: **8813200023188 IS A PALINDROME**

INPUT: Enter number: 295
 OUTPUT: **CANNOT GENERATE A PALINDROME**

3.7 INPUT: Enter N: 4
 Enter coefficients for row1
 Co1: 2
 Co2: -1
 Co3: 0
 Co4: -1
 Enter constant: 1
 Enter coefficients for row2
 Co1: 3
 Co2: 0
 Co3: 1
 Co4: 1
 Enter constant: 1
 Enter coefficients for row3
 Co1: 1
 Co2: 1
 Co3: 0
 Co4: 2
 Enter constant: 0
 Enter coefficients for row4
 Co1: 4
 Co2: 0
 Co3: -3
 Co4: 2
 Enter constant: 0

INPUT: Enter N: 3
 Enter coefficients for row1
 Co1: 3
 Co2: 6
 Co3: 3
 Enter constant: 9
 Enter coefficients for row2
 Co1: 1
 Co2: -1
 Co3: 2
 Enter constant: 9
 Enter coefficients for row3
 Co1: -2
 Co2: 2
 Co3: -1
 Enter constant: -9
 OUTPUT: (2, -1, 3)

OUTPUT: (1, 3, 0, -2)

3.8 INPUT: Enter word: **FILE**
 Enter K: 5
 OUTPUT: **ELFI FILE IFEL**

INPUT: Enter word: **COMPUTE**
 Enter K: 721
 OUTPUT: **ECMOPTU MCEOPUT OCEMTPU**

3.9 RUN PROGRAM: (Spot check the 17 solutions given below. Make sure 108 solutions are printed and numbered. The solutions may be in any numerical order.)

OUTPUT: 411 - 21 = 390 **NUMBER 1**
 511 - 21 = 490 **NUMBER 2**
 611 - 21 = 590 **NUMBER 3**
 711 - 21 = 690 **NUMBER 4**
 811 - 21 = 790 **NUMBER 5**
 511 - 31 = 480 **NUMBER 6**
 611 - 31 = 580 **NUMBER 7**
 711 - 31 = 680 **NUMBER 8**
 :
 :
 :
 377 - 87 = 290 **NUMBER 100**
 477 - 87 = 390 **NUMBER 101**
 577 - 87 = 490 **NUMBER 102**
 677 - 87 = 590 **NUMBER 103**
 277 - 97 = 180 **NUMBER 104**
 377 - 97 = 280 **NUMBER 105**
 477 - 97 = 380 **NUMBER 106**
 577 - 97 = 480 **NUMBER 107**
 677 - 97 = 580 **NUMBER 108**

TOTAL NUMBER OF SOLUTIONS = 108

3.10 RUN PROGRAM: (All left-most 2-digit numbers must appear. The examples on the right may vary, as long as the addends tally to the left-most number.)

OUTPUT: **45 = 0 + 1 + 2 + 3 + 4 + 5 + 7 + 8 + 9**
54 = 10 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9
63 = 20 + 1 + 3 + 4 + 5 + 6 + 7 + 8 + 9
72 = 10 + 23 + 4 + 5 + 6 + 7 + 8 + 9
81 = 10 + 32 + 4 + 5 + 6 + 7 + 8 + 9
90 = 20 + 31 + 4 + 5 + 6 + 7 + 8 + 9
99 = 10 + 24 + 35 + 6 + 7 + 8 + 9