Problem: A deck of playing cards has 52 cards. The cards are separated into 4 suits: diamonds, hearts, spades, and clubs. Each suit has 13 cards that are labeled ace, 2, 10, jack, queen, and king. For this programming problem, diamonds will be numbered 1-13 to represent the cards ace through king, hearts will be numbered 14-26, spades will be numbered 27-39 and clubs will be numbered 40-52. In ACSL Poker, you will be dealt 5 cards.

Your task is to determine the best hand possible using those cards. The hands, in order of rank from low to high, are:

- A PAIR: Exactly 2 cards with the same label but of any suit: example: a 5 of hearts and a five of clubs. This would be cards 18, 44, 31, 5, 9.
- TWO PAIRS: 2 different pairs: example: as of hearts and a 5 of clubs and a 5 of spades and an 8 of hearts. This would be cards 18, 44, 31, 34, 21.
- THREE OF A KIND: Exactly 3 cards with the same label but of any suit: example: a 5 of hearts, a 5 of clubs, and a five of spades. This would be cards 18, 44, 31.
- FLUSH: 5 cards of the same suit: example: 5, 6, 7, 8, and 9 of diamonds. This would be cards 18, 44, 31, 34, 21.
- FULL HOUSE: A pair and three of a kind: example: a 5 of hearts, a 5 of clubs and a five of spades and an 8 of spades and an 8 of hearts. This would be cards 18, 44, 31, 34, 21.
- FOUR OF A KIND: Exactly 4 cards with the same label: example: as of hearts, a 5 of clubs, a 5 of diamonds. This would be cards 18, 44, 31, 34.
- A PAIR and three of a kind: example: a 5 of hearts, a 5 of clubs and a five of spades and an 8 of hearts. This would be cards 18, 44, 31, 34, 21.

Sample Input:

<table>
<thead>
<tr>
<th>Input:</th>
<th>4, 3, 2, 1, 0</th>
<th>Output:</th>
<th>1, 2, 3, 4, 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>4, 3, 2, 1, 0</td>
<td>1, 2, 3, 4, 5</td>
<td>1, 2, 3, 4, 5</td>
<td>1, 2, 3, 4, 5</td>
</tr>
</tbody>
</table>

Sample Output:

<table>
<thead>
<tr>
<th>Input:</th>
<th>4, 3, 2, 1, 0</th>
<th>Output:</th>
<th>1, 2, 3, 4, 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>4, 3, 2, 1, 0</td>
<td>1, 2, 3, 4, 5</td>
<td>1, 2, 3, 4, 5</td>
<td>1, 2, 3, 4, 5</td>
</tr>
</tbody>
</table>

Sample Solution:

```
1. 5 of Hearts
2. 5 of Clubs
3. 5 of Diamonds
4. 5 of Spades
5. 5 of Clubs
```

Evaluation: Evaluate: (EXP (DIV (MULT (ADD 2 (SUB 4 x)) 3) 2) 4)

Input:

```
f(x) = (x - 2) + 3
```

Output:

```
f(1) = 1
```

Evaluation: Evaluate: (EXP (DIV (MULT (ADD 2 (SUB 4 x)) 3) 2) 4)

Input:

```
f(x) = (x - 2) + 3
```

Output:

```
f(1) = 1
```

Digital Electronics

List all the ordered triples that make the circuit TRUE.

```
A
B
C
```

Previous Years' Contest Books on CD that contain the questions and solutions from all divisions and the All-Star Contest. They are $20.00 each:

- Classroom 5
- Elementary 5
- Junior 5
- Senior/5 or Senior/3
- Intermediate/5 or Intermediate/3

Registrations: See the "DIVISIONS" section for more information.

- Classroom 5
- Elementary 5
- Junior 5
- Senior/5 or Senior/3
- Intermediate/5 or Intermediate/3

Only one team per division:

- 1 team $125
- 2 teams $225
- 3 teams $300
- 4 teams $350

Acsl Registration Form

ACSL 2019-2020 REGISTRATION FORM

<table>
<thead>
<tr>
<th>Contest #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Brisas Drive, West Warwick RI 02893</td>
</tr>
<tr>
<td>All fees are in US dollars. Payment or a purchase order must accompany all orders. Register between September 1 and December 1, 2019. Contact ACSL at <a href="mailto:info@acsl.org">info@acsl.org</a>.</td>
</tr>
</tbody>
</table>

School ____________________________

School Address: Street ______________________ City ___________________ State/Province ________

Zip/Postal Code/Country _____________

School Phone: Area Code ____ Tel. ______

Advisor: __________________________

E-mail address: ___________________

Registration: See the "DIVISIONS" section for more information.

- Classroom 5
- Elementary 5 ($50)
- Junior 5
- Senior/5 or Senior/3
- Intermediate/5 or Intermediate/3

Previous Years' Contest Books on CD that contain the questions and solutions from all divisions and the All-Star Contest. They are $20.00 each:

- vol 41 2018-2019
- vol 40 2017-2018
- vol 39 2016-2017
- vol 38 2015-2016
- vol 37 2014-2015
- vol 36 2013-2014
- vol 35 2012-2013
- vol 34 2011-2012
- vol 33 2010-2011
- vol 32 2009-2010
- vol 31 2008-2009
- vol 30 2007-2008
- vol 29 2006-2007
- vol 28 2005-2006
- vol 27 2004-2005

Worksheet – contains short answer questions by division and category from 2001 – 2016. $60.00

TOTAL PAYMENT DUE: ______
American Computer Science League

The American Computer Science League (ACSL) is a non-profit organization devoted to computer science education at the secondary school level. ACSL is on the approved activities list of the NASSP. The purpose of this flier is to tell you about the organization, and to invite your school to participate in it.

ACSL administers computer science contests for junior and senior high school students, publishes a newsletter containing the results of each contest and items of interest, and awards prizes (computer equipment, books, and trophies) to outstanding students and schools at local and regional levels. This past year, our 42nd year of operation, about 450 school teams in the United States, Canada, Europe, Africa and Asia participated.

ACSL will provide a unique and exciting educational opportunity for your school's computer enthusiasts. Contest problems motivate students to study computer topics not covered in their school's curriculum and to pursue classroom topics in depth. At many schools, the League is the focal point both for extracurricular clubs and for entire courses.

The competition consists of 4 contests. Each is held at the participating school thereby eliminating the need for travel, and an unlimited number of students from all grade levels may compete at each school. A school's score is the sum of the scores of its three or five highest-scoring students. In each contest, students are given short theoretical and applied questions, and then a programming problem to solve within the following three days. Programming is done on any school or home computer using any language allowed by the advisor. A faculty advisor administers the contest at each school and results are returned to ACSL for tabulation. At the end of the year, an Invitational Team All-Star Contest, based upon cumulative scores, is held at a common site.

SPONSORS

The following companies were very generous in providing prizes at the ACSL All-Star Contest at Wayne Hills HS, New Jersey:

• Google
• Pearson

ACSL DIVISIONS

The American Computer Science League consists of four divisions to appeal to the varying computing abilities and interests of students.

One registration fee allows all students at a school to compete. The advisor reports the sum of the 3 or 5 best scores as the team score. We encourage schools to join more than one division so that the material does not intimidate novice students, nor are advanced students bored. All divisions cover similar material, but in varying levels of detail and difficulty.

The Senior and Intermediate divisions allow 5-person and 3-person teams. Teams compete for prizes and invitations to the All-Star Contest against same-sized teams; students compete for individual awards independent of the team size. A school may not register both a 5-person team and a 3-person team in the same division.

• The Senior Division is geared to those high school students with experience programming computers, especially those taking a Computer Science AP course. We suggest that schools do not register for the Senior Division during their first year of ACSL participation.

• The Intermediate Division is geared to senior high school students with little or no computer programming experience, and to advanced junior high students.

• The Junior Division is geared to junior high and middle school students with no previous experience programming computers. No student beyond grade 9 may compete in the Junior Division.

• The Classroom Division is open to students from all grades. It consists of a selection of the non-programming problems from the other three divisions. As its name implies, this division is particularly well suited for use in the classroom.

• The Elementary Division is open to students from grades 3 - 6. It consists of a selection of the non-programming problems from 4 of our categories. One category is tested each contest. This division is particularly well suited for introduction of computer science in the classroom or as a club activity.

CONTEST DATES

The following are the contest end dates for the contest year:

<table>
<thead>
<tr>
<th>Contest</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>Friday, December 20, 2019</td>
</tr>
<tr>
<td>#2</td>
<td>Friday, February 7, 2020</td>
</tr>
<tr>
<td>#3</td>
<td>Friday, March 13, 2020</td>
</tr>
<tr>
<td>#4</td>
<td>Friday, April 10, 2020</td>
</tr>
</tbody>
</table>

The ACSL Invitational Team All-Star contest will be held on Saturday, May 23, 2020.