

Liberian Math Olympics: Monrovia
July 7, 2017
Team Round Answer Sheet

School: _____
Name: _____
Name: _____
Name: _____
Name: _____
Name: _____

Instructions

Please read the following instructions carefully.

- **Write your school and names in the appropriate area of this sheet.**
- The test will be 30 minutes long and contains 10 problems.
- Your team will receive one point for each correct answer and zero points for each blank or incorrect answer.
- Only the answers written on the this answer sheet will be scored. Your team will only submit one answer sheet.
- Because there is no penalty for wrong answers, you should answer each question, even if you have to write a complete guess.
- If you're stuck on one problem, you should move on to the next one and come back later if you have time.
- Remember to answer the specific question that is asked!
- Good luck!

Answers

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

For Grader Use Only

Score	Initials

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1. Juliet is thinking of a two-digit number. She says, "The number is eight times the sum of its digits." What is the number?
2. Two sides of an *isosceles* triangle have length 6 and 13. What is the *perimeter* of the triangle? **Hint:** There is only one correct answer!
3. The *Fibonacci sequence* is the sequence 1, 1, 2, 3, 5, ..., where each number is the sum of the previous two numbers. What is the 10th number in this sequence?
4. Find $a + b + c$ if

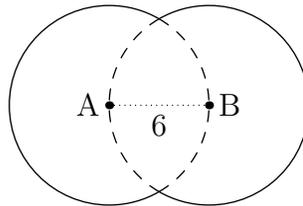
$$\begin{aligned}2a + b + c &= 12 \\a + b + 2c &= 66 \\a + 2b + c &= -18.\end{aligned}$$

Hint: What happens when you add the equations?

5. Compute

$$2 - 4 + 6 - 8 + 10 - 12 + 14 - 16 + 18 - 20.$$

6. James has a box with 11 white socks and 11 black socks. How many socks must he pull out of the drawer without looking before he can be sure that he has at least one black sock and one white sock?
7. A certain bacteria colony doubles in size every day when placed in a container. The container becomes full on the 50th day. On what day is the container half full?
8. Four people (Ann, Bob, Cathy, and Daniel) are sitting in a line. How many different ways can they arrange themselves?
9. How many diagonals does a regular hexagon have? (A *diagonal* is a line between two of the corners that is not a side of the hexagon.)
10. In the following figure, the circles with centers A and B share a radius AB , which is 6cm long. What is the perimeter of the solid part of the diagram? Do not count the dotted lines.



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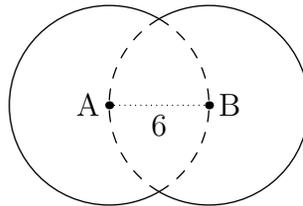
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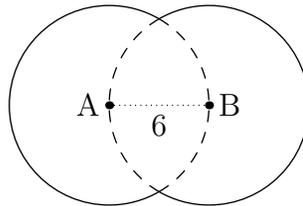
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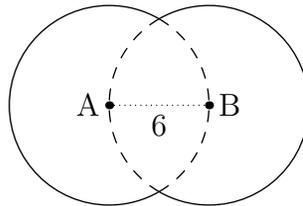
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