



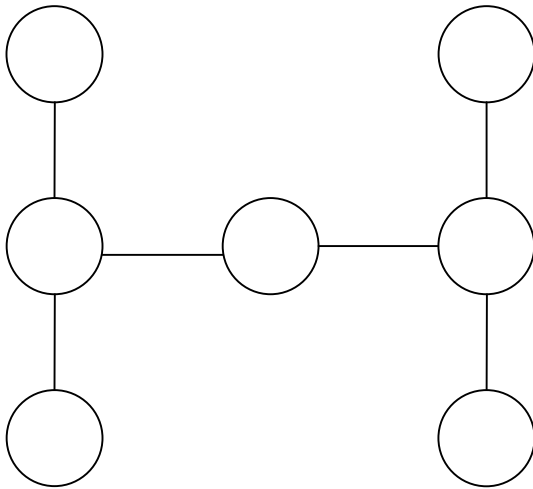
ECIS Mathematics League 2005

Aristotle's League (suggested age 10 -11) No calculators

Section one - 40 minutes (6 questions)

1. Find two numbers whose sum is 25, and whose difference is 11.

2. Place the numbers 1, 2, 3, 4, 5, 6 and 7 in the circles, so that the sum along each line is 12.



3. I am thinking of a number. Double the number and subtract 17, the answer is 39. What is the number?

4. Sam has a total of six US\$ coins that have a total value of 48c. What coins does Sam have? Can you find more than one solution?

5. Genna, Alina and Ben belong to the same family. Alina is three times as old as Ben. Genna is twice as old as Ben. When you add their three ages you get 36. How old is each person?

6. The combination to the Woolleys' lock is a three-digit number. Find the combination from these clues:

a) The digits total 14;

b) Two digits are odd;

c) The tens digit is largest;

d) The tens digit is twice the units digit.



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Section two - 40 minutes (6questions)

1. You arrive at the bank and get into the lift on the first floor. The lift then travels up 8 floors, down 5 floors, up 3 floors, down 6 floors, and then up 9 floors to reach the top floor.
How many floors does the building have?

2. Use three straight lines which must go completely across the circle to divide the circle into

- 4 regions
- 5 regions
- 6 regions
- 7 regions

3. In the frog-jumping competition frogs were judged on the total distance jumped after five consecutive jumps. My frog, Springs, jumped 24 metres with first jump. Each jump after that was only half the distance of the previous jump. The best jumping total of the other frogs was 46 metres. Did Springs win?

4. Carolyn, Dee-Anne, Paula and Jana each live on a different corner of the same block. If you walked clockwise around the block starting at Carolyn's house you would first come to Dee-Anne's house, then Paula's house, then Jana's house. Each side of the block is 100 metres long. If Carolyn visited Paula, then Jana, and then Dee-Anne, and returned home, what is the shortest distance she would need to travel? (The blocks are square and you can not walk through the inside of the block, along the sides only)

5. In Susan's rectangular garden plot she put 12 posts on the long sides and 8 posts on the short sides. How many posts did she use altogether?

6. I had just finished building exactly half of the layers of my brick wall when a violent storm blew down 5 layers. When the storm had finished I continued laying bricks and put on another 9 layers before dark. The next day I finished the wall by adding 6 more layers. How many layers of bricks were there in my wall?



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Section three - 40 minutes (6 questions)

1. How many different numbers can be made from these three digits? A digit can be used only once in a number.

7

4

3

2. What number am I?

a) I have 2 digits.

c) My digits total 9

b) I am divisible by 5.

d) I am an even number.

3. Todd has \$60 to spend on birds for his aviary. There are canaries and lovebirds for sale. Knowing that the price of each canary is \$3, and the price of each lovebird is \$5. What possibilities are there if he spends all of his money?

4. What two pages is my book open at if the total of the two pages is 267?

5. How many football cards does Andrew have in his collection? He has less than 60 cards. If you divide the number by 2, 3, or 4 there is a remainder of 1. When you divide the number by 5 there is no remainder.

6. In the farmyard there are ducks and pigs. Altogether there are 19 heads and 52 legs. How many ducks are in the yards? How many pigs are in the yard?

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Aristotle's League (suggested age 10 -11) - out of 18 marks

ANSWERS

Maximum marks awarded for each section - 6

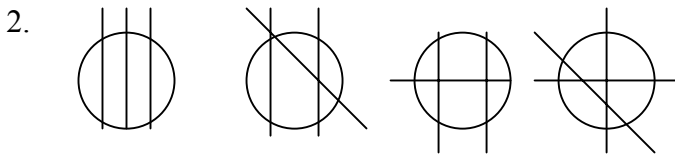
Section one

- 7 and 18.
- One solution:

2			1
3	4		5
7			6
- 28
- 20c,20c,5c,1c,1c,1c;
or 20c,20c,2c,2c,2c,2c;
or 20c,10c,10c,5c,2c,1c.
- Ben; 6 years; Genna, 12 years; Alina, 18 years.
- 563.

Section two

- 10 floors.



and other solutions are possible.

- Yes, Springs won. He jumped 46.5 metres.
- 600 metres.
- 36 posts.
- 20 layers.

Section three

- 6 different numbers: 347, 374,437,473,734, 743.
- 90
- 20 canaries and 0 lovebirds; 15 canaries and 3 lovebirds; 10 canaries and 6 lovebirds;
5 canaries and 9 lovebirds; 0 canaries and 12 lovebirds.
- 133 and 134.
- 25
- 12 ducks and 7 pigs.