



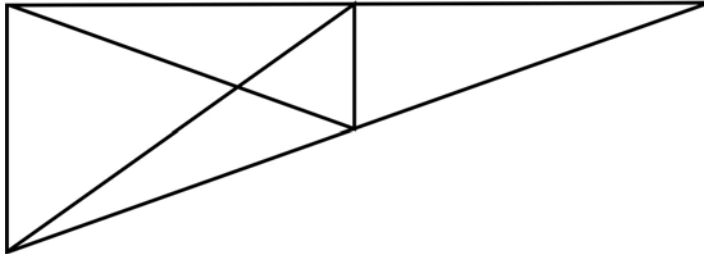
ECIS Mathematics League
Aristotle League 2006
Suggested age 10-12

Section One

Calculators are not allowed

Time: 40 minutes

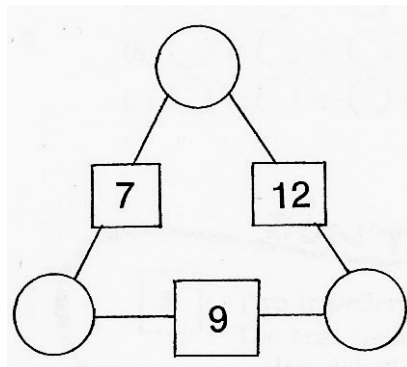
1. How many triangles are there in this shape?



2. Who am I?

- I am a whole number less than 50
- When you add my digits you get 5
- I am an even number
- I am divisible by 8.

3. Look at the diagram drawn below. The sum of the numbers in any two circles gives the number in the square which is between the two circles. Find the numbers in the circles.



4. The circles all contain the same number. Find this number.

$$\bigcirc \times \bigcirc + \bigcirc = 20$$

5. I bought three different chocolate bars. Their total value was \$1.20. The second chocolate bar costs 5 cents more than the first; the third chocolate bar costs 5 cents more than the second. How much did each chocolate bar cost?

6. How many times would I write the digit 3, if I wrote all the numbers from 1 to 200?



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Section Two

Calculators are not allowed

Time: 40 minutes

1. I think of a number. I multiply the number by 2 and then add 15. The answer is 49. What number did I think of?

2. Put the numbers 1 - 9 in the circles. Do not use the same number twice in any one question (however, two different questions may use the same number).

(a) $\bigcirc \times \bigcirc - \bigcirc = 10$

(b) $\bigcirc \times \bigcirc + \bigcirc = 25$

(c) $\bigcirc \times \bigcirc \div \bigcirc = 7$

3. When I opened a book the total of the two page numbers was 137. What were the two page numbers?

4. A farmer raised sheep and chickens. The farmer counted 17 heads and 56 legs. How many sheep and how many chickens did the farmer have?

5. I share \$500 between Mr. Jones, Mr. Smith and Mr. White. Mr. White receives twice as much as Mr. Smith and Mr. Smith receives three times as much as Mr. Jones. How much does each receive?

6. A man buys a goose, two drakes and three chickens for \$16. Two drakes and three chickens cost the same as three geese. Three chickens cost the same as two drakes. What is the cost of (a) 1 goose? (b) 1 drake? (c) 1 chicken?

(a) (b) (c)



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Section Three

Calculators are not allowed

Time: 40 minutes

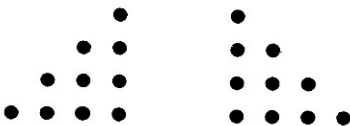
1. Eleven people are riding bicycles (two wheels) and tricycles (three wheels). There are 26 wheels altogether. (a) How many bicycles are there? (b) How many tricycles are there?

(a)

(b)

2. I have two numbers. When I add them I get 39. When I take one away from the other I get 11. Find the two numbers.

3. Change the first triangle into the second triangle by moving three counters (and only three counters). Draw two diagrams for your answer.



4. A driveway is 23 metres long and wide enough for one car. Small cars are 3 metres long. Large cars are 4 metres long. Parked cars must be 1 metre apart. (a) How many small cars can be parked? (b) How many large cars can be parked?

(a)

(b)

5. On a quiz show Mary was paid \$8 for each correct answer, and had to pay back \$5 for each incorrect answer. After 26 questions Mary broke even (she did not win or lose any money). How many questions did she answer correctly?

6. A 'cone' is made from one kind of ice cream and one kind of topping. How many different cones can you make if you have three kinds of ice cream (chocolate, lime and vanilla) and three kinds of topping (banana, caramel and strawberry)?

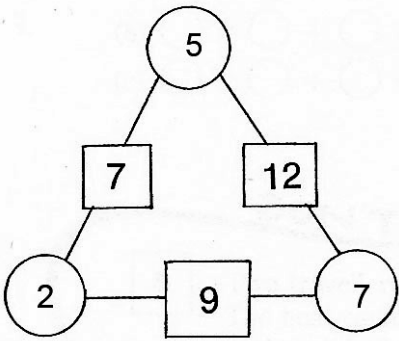


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Answers

Section one

1. 12
2. 32
- 3.



4. $4 \times 4 + 4 = 20$ or $(-5) \times (-5) + (-5) = 20$
5. $35c; 40c; 45c;$
6. 3, 13, 23, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 43, 53, 63, 73, 83, 93
103, 113, 123, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 143, 153, 163, 173, 183, 193
Total of 40

Section two

1. 17.
2. Possible solutions:
 - a. $4 \times 3 - 2 = 10$
 - b. $6 \times 4 + 1 = 25$
 - c. $2 \times 3 \div 1 = 6$
3. 68 and 69
4. 6 chickens; 11 sheep
5. Mr. Jones \$50, Mr. Smith \$150; Mr. White \$300
6. (a) Goose, \$4; (b) Drake, \$3; (c) Chicken \$2

Section three

1. 7 bicycles; 4 tricycles.
2. 25 and 14
- 3.
4. (a) 6; (b) 4;
5. 10
6. 9

