

# 22METS

6 noiembrie 2010

## CLASA a IV-a

Here are some suggestions to help you do your best:

- Read carefully each question and think about the answer before choosing your response.

### RULES

- Part I has four multiple choice exercises.
- Part II must be solved into English
- Part III must be translated into English , and then solved in English as well.

### PART I.

1. Four people can sit at a square table. For the school party the students put together 7 square tables in order to make one long rectangular table. How many people can sit at this long table now?

- A 14
- B 16
- C 21
- D 24

2. In the pattern below, which number belongs in the box?

0,5,4,9,8,13,12,17,16, □

- A 15
- B 19
- C 20
- D 21

3. Dan wakes up at 7:30 A.M. on Saturday. He leaves for football practice at 10:00 A.M. How long is Dan awake on Saturday before he leaves for football practice?

- A 1 hour 30 minutes
- B 2 hours
- C 2 hours 30 minutes
- D 3 hours



4. Mr. Paul buys 102 bottles of water for the football team. The water comes in boxes of 6 bottles of water in each box. Which expression can be used to find the number of **boxes** of water Mr. Paul buys?

- A  $6 \times 102 = \square$
- B  $102 : 6 = \square$
- C  $6 + \square = 102$
- D  $102 - \square = 6$

### PART II.

Below is an equality that isn't correct yet. By adding a number of plus signs and minus signs between the digits on the left side (without changes the order of the digits), the equality can be made correct.

$$123456789 = 100 .$$

How many different ways are there to make the equation correct?

### PART III.

Ion, Petre și George au împreună 3 creioane colorate : unul roșu, unul galben și altul albastru. Fiecare are un creion. Ion nu are creionul roșu și nici pe cel albastru, iar George nu are creionul roșu .

Ce culoare are creionul lui Ion?

Ce culoare are creionul lui Petre?

Ce culoare are creionul lui George?



**CLASA a VI-a**

**Here are some suggestions to help you do your best:**

- Read carefully each question and think about the answer before choosing your response.

**RULES**

- Part I has four multiple choice exercises.
- Part II must be solved into English
- Part III must be translated into English , and then solved in English as well.

**PART I.**

1. A bottle of a volume of – liter is – filled with juice. How much juice will be left in the bottle after pouring out – of a liter?

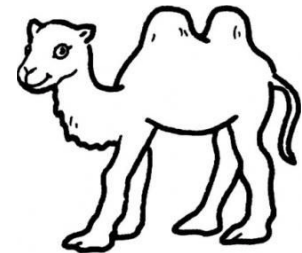
- A — liter  
 B — liter  
 C –liter  
 D The bottle will be empty

2. John put magazines on a bookshelf. They have either 48 or 52 pages. Which of the following numbers cannot be the total number of pages of all magazines on the bookshelf?

- A 500  
 B 524  
 C 568  
 D 620

3. Margaret, the camel, started a ride in the desert at 8:15 on Monday morning . She travelled for 98 hours and 56 minutes. When did Margaret end the ride?

- A On Thursday at 5:41 A.M.  
 B On Thursday at 11:11 A.M.  
 C On Friday at 5:41 A.M.  
 D On Friday at 11:11 A.M.



4. We have two numbers  $X$  and  $Y$ , each of them has three digits. If the digits of  $X$  is 1, 2, 3 and the digits of  $Y$  is 3, 4, 5, knowing that  $X+Y$  is an even number and 2 is the second digit for  $X$ , which is the last digit for the product  $XY$ ?

- A It cannot be obtained  
 B 2  
 C 5  
 D 4

**PART II.**

Greengrocer C. Carrot wants to expose his oranges neatly for sale. Doing this he discovers that one orange is left over when he places them in groups of three. The same happens if he tries to place them in groups of 5, 7, or 9 oranges. Only when he makes groups of 11 oranges, it fits exactly.

How many oranges does the greengrocer have at least?

**PART III.**

Mihai este de două ori mai mare decât sora sa Alina. Alina are un coș cu cireșe și Mihai unul cu alune. Ea are de trei ori mai multe cireșe decât numărul alunelor lui Mihai. Dacă înmulțim numărul care reprezintă vârsta lui Mihai cu numărul cireșelor obținem 510.

Ce vârstă are Alina și câte alune are Mihai?

**CLASA a VII-a**

**Here are some suggestions to help you do your best:**

- Read carefully each question and think about the answer before choosing your response.

**RULES**

- Part I has four multiple choice exercises.
- Part II must be solved into English
- Part III must be translated into English , and then solved in English as well.

**PART I.**

1. In the isosceles triangle ABC,  $m(\angle C) = 22^\circ$ . Then which is the value of  $m(\angle B)$ ?  
**A**  $68^\circ$       **B**  $78^\circ$       **C**  $79^\circ$       **D**  $83^\circ$

2. Alice shares cookies with some colleagues. If she gives cookies for 6 colleagues, or for 3 colleagues, or for 4 colleagues she remains with 1 cookie each time. How many cookies does she have?

**A** 9      **B** 12      **C** 13      **D** 25

3. The supplementary angles of  $\angle A$ ,  $\angle B$ ,  $\angle C$  the angles in \_\_\_\_\_ are directly proportional with 3, 4 respective 5. Then \_\_\_\_\_ is...

- A** Isosceles triangle
- B** Equilateral triangle
- C** Rectangular triangle
- D** Obtuse triangle

4. A school bus travels from Veldhoven to Roosendaal. There are 4 children in the bus. And each child has 4 backpacks with him. There are 4 dogs sitting in each backpack. And every dog has 4 puppies with her. All these dogs have 4 legs, with 4 toes at each leg. What is the total number of toes in the bus?

- A** 6400
- B** 1225
- C** 5170
- D** 5250



**PART II.**

Charles walks over a railway-bridge. At the moment that he is just ten meters away from the middle of the bridge, he hears a train coming from behind. At that moment, the train, which travels at a speed of 90 km/h, is exactly as far away from the bridge as the bridge measures in length. Without hesitation, Charles rushes straight towards the train to get off the bridge. In this way, he misses the train by just four meters! If Charles would, however, have rushed exactly as fast in the other direction, the train would have hit him eight meters before the end of the bridge.

What is the length of the railway-bridge?

**PART III.**

La un concurs de matematică elevii au primit o problemă de algebră și una de geometrie. Se știe ca 25 de elevi au rezolvat corect ambele probleme, 72% au rezolvat corect problema de algebră, iar 48% au rezolvat corect problema de geometrie.

Să se afle :

- a) câți elevi sunt în clasă;
- b) câți elevi au rezolvat corect problema de algebră?
- c) câți elevi au rezolvat corect problema de geometrie?

**CLASA a VIII-a**

**Here are some suggestions to help you do your best:**

- Read carefully each question and think about the answer before choosing your response.

**RULES**

- Part I has four multiple choice exercises.
- Part II must be solved into English
- Part III must be translated into English , and then solved in English as well.

**PART I.**

1. A rectangular room measures 7.5 meters in length and 3 meters in width. The room has a height of 3 meters. A spider sits 25 centimeters down from the ceiling at the middle of one of the short walls. A sleeping fly sits 25 centimeters up from the floor at the middle of the opposite wall. The spider wants to walk (i.e., move along the walls, floor, and ceiling only) to the fly to catch it. How long is the shortest path between the spider and the fly?



- A** 12,5 m      **B** 10 m      **C** 21 m      **D** 100 m

2. On a nice summer day, two tourists visit the Dutch city of Gouda. During their tour through the center they spot a cosy terrace. They decide to have a drink and, as an appetizer, a portion of hot "bitterballs" (bitterballs are a Dutch delicacy, similar to croquettes). The waiter tells them that the bitterballs can be served in portions of 6, 9, or 20.

What is the largest number of bitterballs that *cannot* be ordered in these portions?

- A** 49      **B** 37      **C** 21      **D** 43

3. On a sunny morning, a greengrocer places 200 kilograms of cucumbers in cases in front of his shop. At that moment, the cucumbers are 99% water. In the afternoon, it turns out that it is the hottest day of the year, and as a result, the cucumbers dry out a little bit. At the end of the day, the greengrocer has not sold a single cucumber, and the cucumbers are only 98% water.

How many kilograms of cucumbers has the greengrocer left at the end of the day?

- A** 198 kilograms      **B** 100 kilograms      **C** 180 kilograms      **D** 120 kilograms

**PART II.**

William lives in a street with house-numbers 8 up to 100. Lisa wants to know at which number William lives.

She asks him: "Is your number larger than 50?"

William answers, but lies.

Upon this, Lisa asks: "Is your number a multiple of 4?"

William answers, but lies again.

Then Lisa asks: "Is your number a square?"

William answers truthfully.

Upon this, Lisa says: "I know your number if you tell me whether the first digit is a 3."

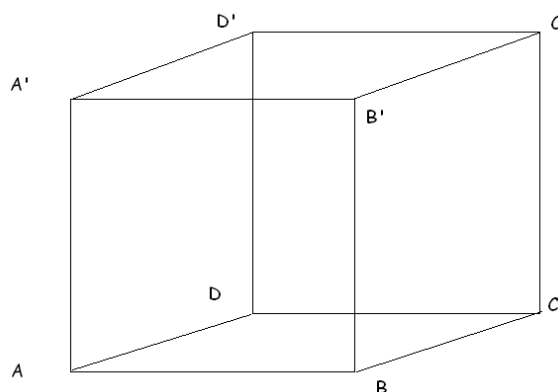
William answers, but now we don't know whether he lies or speaks the truth.

Thereupon, Lisa says at which number she thinks William lives, but (of course) she is wrong.

What is William's real house-number?

**PART III.**

În figura alăturată este reprezentată schematic jucăria unui copil de forma unui cub  $ABCD A'B'C'D'$ . Pe fețele  $ABCD$ ,  $BCC'B'$ ,  $A'B'C'D'$  respectiv  $ADD'A'$  sunt desenate triunghiurile echilaterale  $ABM$ ,  $B'C'N$ ,  $C'D'P$  și  $ADQ$ , ce sunt colorate în roșu, albastru, galben și verde.



- a) Arătați că punctele  $M, N, P, Q$  sunt coplanare
- b) Arătați că  $MNPQ$  este dreptunghi