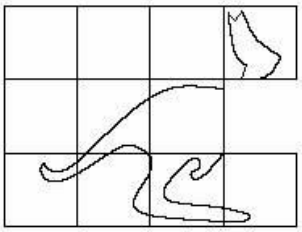
www.mathkamgaroo.com

Math Kangaroo 2002

Level of grades 3 - 4

Problems 3 points each:

1. Which of the squares below should be put into the picture to the right, to get the symbol of our competition?



A/  B/  C/  D/  E/ 

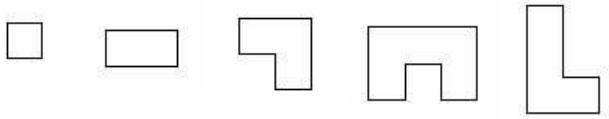
2. After we simplify 2 + 2 - 2 + 2 - 2 + 2 - 2 + 2 - 2 + 2
the result will be:

A/ 0 B/ 2 C/ 4 D/ 12 E/ 20

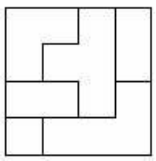
3. Andrzej received three cars, four balls, three teddy bears, ten pens, two chocolate bars, and a book for his birthday. How many items did he get in all?

A/ 15 B/ 17 C/ 20 D/ 23 E/ 27

4. A square was divided into pieces (see the picture). Which of the following pieces does not occur in



this divided square?



A/ B/ C/ D/ E/

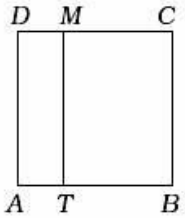
5. Julia, Kasia, Zuzanna, and Helena have their birthdays on March 1st, May 17th, July 20th, and March 20th. Kasia and Zuzanna were born in the same month. Julia and Zuzanna were born on the same day of a month. Which of the girls was born on May 17th?

A/ Julia B/ Kasia C/ Zuzanna E/ Helena
E/ It cannot be determined from the given informfation.

6. A human heart beats an average of 70 times per minute. On average how many times does it beat during one hour?

A/ 42,000 B/ 7,000 C/ 4,200 D/ 700 E/ 420

7. Quadrilateral *ABCD* is a square and its side is 10 cm long. Quadrilateral *ATMD* is a rectangle and its shorter side is 3 cm. What is the difference between the sum of the lengths of all the sides of the square and the sum of the lengths of all the sides of the rectangle?



A/ 14 cm B/ 10 cm C/ 7 cm D/ 6 cm E/ 4 cm

8. 

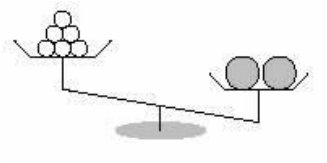
Which of the figures below (see the picture) couldn't be made with folding a rectangular sheet just once?

A) B) C) D) E)

Problems 4 points each:

9. Houses on the street where John lives are numbered from 1 to 24. How many times does the digit 2 appear in the numbering of those houses?

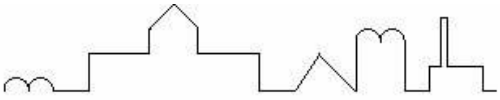
A/ 2 B/ 4 C/ 8 D/ 16 E/ 32

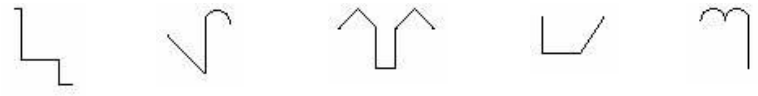
10. 

There are six identical oranges on one scale of the balance and two identical melons on the other scale. After we put one melon on the scale with the oranges, the scales will be balanced. How many oranges weigh as much as one melon?

A/ 2 B/ 3 C/ 4 D/ 5 E/ 6

11. This picture below is a sketch of a castle. Which of the lines below does not belong to the sketch?





A) B) C) D) E)

12. We add 17 to the smallest two-digit number and then we divide the sum by the largest one-digit number. What is the result?

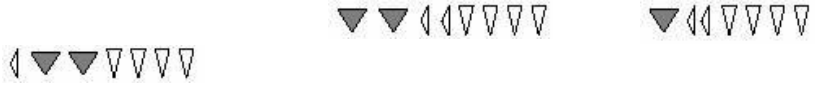
A/ 3 B/ 6 C/ 9 D/ 11 E/ 27

13. In a certain ancient country the numbers: one, ten, and sixty were expressed with the following symbols:

one ten sixty

Using those symbols people were writing down other numbers, for example the number 22 was written as

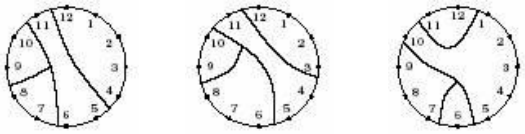
Which of the following notations represents the number 124 ?



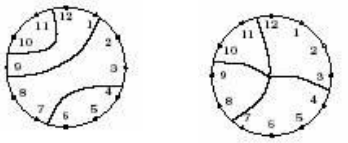
A) B) C)

D) E)

14. A face of a clock was divided into four parts. The sums of the numbers in each of those parts are consecutive



numbers. Which of the following pictures satisfies this rule?

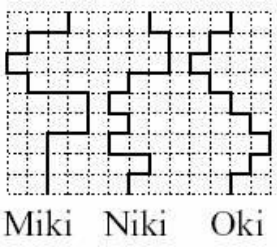


A) B) C) D) E)

15. Klara and Zosia had 60 matches altogether. Klara took as many matches as she needed to build a triangle, each side 6 matches long. Zosia used the remaining matches to build a rectangle, which had one side equal to 6 matches. How many matches long is each of the longer sides of this rectangle?

A/ 9 B/ 12 C/ 15 D/ 18 E/ 30

16. Three kangaroos: Miki, Niki, and Oki participated in a competition. Jumping at the same speed, they jumped along the lines you can see in the picture. Only one of the following sentences A, B, C, D and E is true. Which one?



A/ Miki and Oki finished at the same time.
B/ Niki finished first.
C/ Oki finished last.
D/ All kangaroos finished at the same time.
E/ Miki and Niki finished at the same time.

Problems 5 points each:

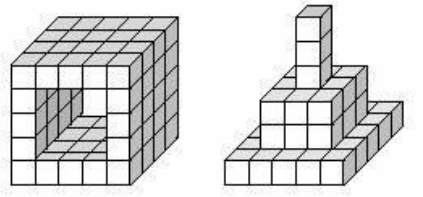
17. Each boy: Mietek, Mirek, Pawel, and Zbyszek has exactly one of the following animals: a cat, a dog, a gold fish, and a canary-bird. Mirek has a pet with fur. Zbyszek has a pet with four legs. Pawel has a bird, and Mietek and Mirek don't like cats. Which of the following sentences is not true?

A/ Zbyszek has a dog. B/ Pawel has a canary. C/ Mietek has a golden fish.
D/ Zbyszek has a cat. E/ Mirek has a dog.

18. Marysia leaves her house at 6:55 and arrives at school at 7:32. Zosia needs 12 minutes less than Marysia to get to school. Yesterday Zosia showed up at school at 7:45. What time did she leave her house?

A/ At 7:07 B/ At 7:20 C/ At 7:25 D/ At 7:30 E/ At 7:33

19.



Robert had a certain number of identical cubes. He glued a tunnel using half of his blocks (see Picture 1). With some of the remaining cubes he formed a pyramid (see Picture 2). How many blocks were not used to build those structures?

A/ 34 B/ 28 C/ 22 D/ 18 E/ 15 Picture 1 Picture 2

20. Daughter is 3 years old, and her mother is 28 years older than the daughter. How many years later will the mother be three times older than her daughter?

A/ 9 B/ 12 C/ 10 D/ 1 E/ 11

21. A conductor wanted to make a trio consisting of a fiddler, a pianist, and a drummer. He had to choose one of two fiddlers, one of two pianists, and one of two drummers. He decided to try each of the possible trios. How many attempts did he have to make?

A/ 3 B/ 4 C/ 8 D/ 24 E/ 25

22. One medal can be cut out from a golden square plate. If four medals are made from four plates, the remaining parts of those four plates can be used to make one more plate. What is the largest number of medals that could be formed when 16 plates are used?

A/ 17 B/ 19 C/ 20 D/ 21 E/ 32

23. Twenty eight students from the fourth grade competed in the math competition. Each student earned a different number of points. The number of students who received more points than Tomek is two times smaller than the number of students who had less points than Tomek. In which position did Tomek finish that competition?

A/ 6^{th} B/ 7^{th} C/ 8^{th} D/ 9^{th} E/ 10^{th}

24. An odometer in a car shows the number 187569 of passed kilometers. This number consists of all different digits. After passing how many kilometers will the odometer show a number consisting of all different digits again?

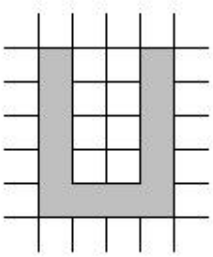
A/ After 777 km B/ After 12,431 km C/ After 431 km D/ After 21 km E/ After 11 km

Math Kangaroo 2003

A) 12 B) 24 C) 36 D) 40 E) 48

Questions—3points each

1. The picture below shows the letter U drawn on grid paper.
How many squares does the letter U cover?

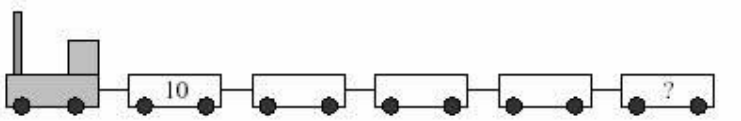


A) 10 B) 8 C) 11 D) 13 E) 12

2. What is the sum of 0 + 1 + 2 + 3 + 4 – 3 – 2 – 1 – 0?

A) 0 B) 2 C) 4 D) 10 E) 16

3.



The first train car, right behind the engine, contains 10 boxes. In each of the other cars there are twice as many boxes as in the car in front of it. How many boxes are there in the fifth car?

A) 100 B) 120 C) 140 D) 160 E) 180

4. Zosia is drawing kangaroos. The first one is blue, the next one green, followed by red, and finally yellow, and then again blue, green, red, yellow, and so on, in the same order. What color will the seventeenth kangaroo be?

A) Blue B) Green C) Red D) Black E) Yellow

5. In the teachers' lounge there are 6 tables with 4 chairs by each one, 4 tables with 2 chairs by each, and 3 tables with 6 chairs by each. How many chairs are there in the lounge?

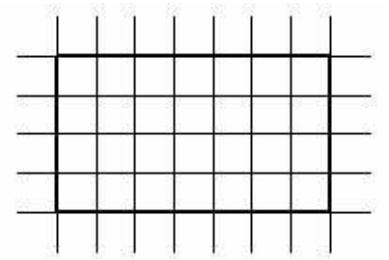
A) 40 B) 25 C) 50 D) 36 E) 44

6. In one of these pictures, there are three times as many hearts as other shapes. Which picture is it?

A) B) C) D) E)

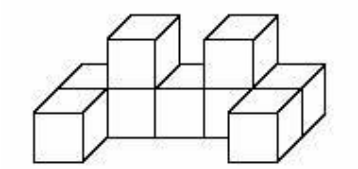
7. A rectangle with dimensions 7 x 4 was outlined on grid paper. How many squares will a diagonal of this rectangle

intersect?



A) 8 B) 9 C) 10 D) 11 E) 12

8.



The figure presented in the picture, made with identical cubes, weighs 189 grams. How much does one cube weigh?

A) 29 g B) 25 g C) 21 g D) 19 g E) 17 g

Questions—4 points each

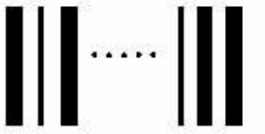
9. Peter wrote out consecutive natural numbers starting with 3 until he had written 35 digits. What was the greatest number that Peter wrote?

A) 12 B) 22 C) 23 D) 28 E) 35

10. Anna fell asleep at 9:30 PM and woke up at 6:45 AM the next day. Her little brother Peter slept 1 hour and 50 minutes longer. How long did Peter sleep?

A) 30 hr 5 min B) 11 hr 35 min C) 11 hr 5 min D) 9 hr 5 min E) 8 hr 35 min

11. A pattern, the beginning and the end of which is shown in the picture, is made up of alternating black and white bars. There are 17 bars altogether. The bars on both ends are black. How many white bars are there in the pattern?



A) 9 B) 16 C) 7 D) 8 E) 15

12. Jumping Kangaroo is practicing for the animal Olympics. His longest jump during the training was 55 dm 50 mm long, but in the finals of the Olympics he won with a jump that was 123 cm longer. How long was Jumping Kangaroo's longest jump during the Olympics?

A) 6 m 78 cm B) 5 m 73 cm C) 5 m 55 cm D) 11 m 28 cm E) 7 m 23 cm

13. Peter chose a certain number, then he subtracted 203 from it, then he added 2003 to that difference. His final result was 20003. What number did Peter choose at the beginning?

A) 23 B) 17797 C) 18203 D) 21803 E) 22209

14. Barbara likes to add the digits showing the current time on her electronic watch (for example, when the watch shows 21:17, she gets the number 11 as the result). What is the greatest sum she can get?
(Hint: in some countries and sometimes in USA, instead of telling it is 1P.M., people say it is 13:00. When it is

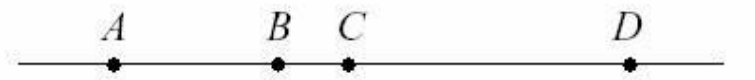
2P.M. they say it is 14:00, and when it is 12A.M., they say it is 24:00. In this problem 21:17 means 9:17P.M. Time expressed with this method is called *military time* sometimes.)

A) 24 B) 36 C) 19 D) 25 E) 23

15. Mark said to his friends, "If I had picked twice as many apples as I picked, I would have 24 more apples than I have now." How many apples did Mark pick?

A) 48 B) 24 C) 42 D) 12 E) 36

16. Points A, B, C, D all of which lie on a straight line, are marked in the figure below. The distance between points A and C is 10 m, between B and D is 15 m, and between A and D is 22 m. What is the distance between points B and C?



A) 1 m B) 2 m C) 3 m D) 4 m E) 5 m

17. There are 29 students in the class. 12 of the students have a sister and 18 of the students have a brother. In this class, only Tania, Barbara, and Anna do not have any siblings. How many students from this class have both a brother and a sister?

A) None B) 1 C) 3 D) 4 E) 6

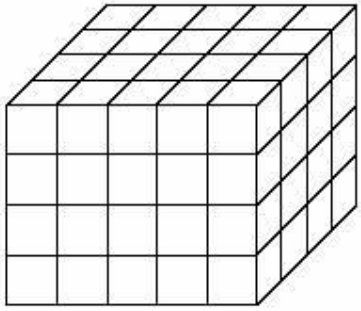
18. Peter has 11 pieces of paper. He cut some of them into three parts and now he has 29 pieces of paper. How many pieces of paper did he cut?

A) 3 B) 2 C) 8 D) 11 E) 9

19. Peter bought 3 kinds of cookies: large, medium, and small. The large cookies cost 4 zlotys each, the medium: 2 zlotys each, and the small: 1 zloty each. (A zloty is the Polish unit of money.) Altogether, Peter bought 10 cookies and paid 16 zlotys. How many large cookies did he buy?

A) 5 B) 4 C) 3 D) 2 E) 1

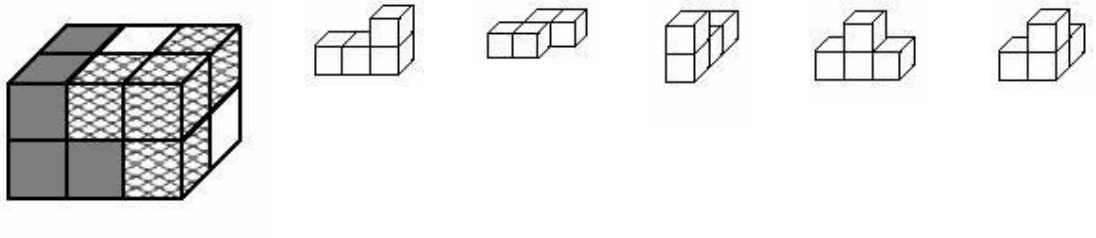
20. Christopher built a rectangular prism using red and blue cubes of identical size. The outer walls of this prism are red but all the inner cubes are blue. How many blue cubes did Christopher use in this construction?



21. Jurek is planning to buy some basketballs. If he were to buy 5 balls, he would have 10 zlotys left over, and if he were to buy 7 balls, he would have to borrow 22 zlotys. (A zloty is the Polish unit of money.) How much does one basketball cost?

A) 11 B) 16 C) 22 D) 26 E) 32

22.

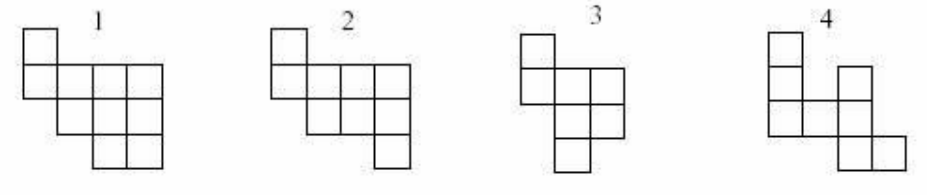


Mark built a rectangular prism using 3 blocks, each of which is made up of 4 small cubes connected in various ways. Two

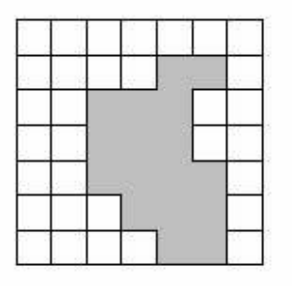
of the blocks are shown in the picture. Which is the third, white block, of which only two sides are visible?

A) B) C) D) E)

23.



From a square puzzle, two pieces, which made up the shaded region, were cut out (see the figure). Which two of the pieces below are these?



A) 1 and 3 B) 2 and 4 C) 2 and 3 D) 1 and 4 E) 3 and 4

24. At the toy store, among other things, you can buy dogs, bears, and kangaroos. Three dogs and two bears together cost as much as four kangaroos. For the same amount of money you can buy one dog and three bears. Then:

A) A dog is twice as expensive as a bear.
B) A bear is twice as expensive as a dog.
C) The prices of a dog and of a bear are identical.
D) A bear is three times as expensive as a dog.
E) A dog is three times as expensive as a bear.

Back to past problems

Back to All Problems Page

MATH KANGAROO 2004 in USA
Level of Grades 3 - 4

3 points each

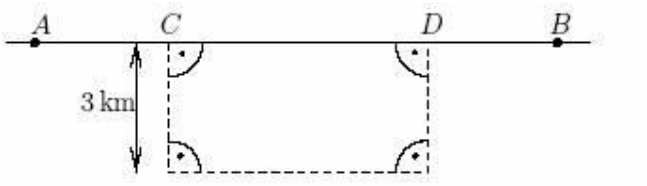
1. 2001+ 2002 + 2003 + 2004 + 2005 =

A) 1,015 B) 5,010 C) 10,150 D) 11,005 E) 10,015

2. Marek was 4 years old when his sister was born. Today he blew out all 9 candles on his birthday cake. What is the difference between Marek's and his sister's age today?

A) 4 years B) 5 years C) 9 years D) 13 years E) 14 years

3. The picture below shows a road from town *A* to town *B* (indicated by solid line) and a detour (marked by a dash line) caused by renovation of the section *CD*. How many kilometres longer is the road from town *A* to town *B* because of the detour now?



A) 3 km B) 5 km C) 6 km D) 10 km E) This cannot be calculated.

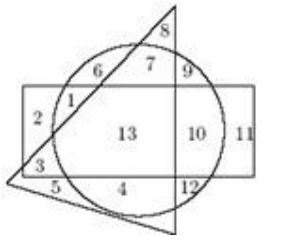
4. Which of the results below is not identical to the difference 671 – 389?

A) 771 – 489 B) 681 – 399 C) 669 – 391 D) 1871 – 1589 E) 600 – 318

5. There were some birds sitting on the telegraph wire. At one moment, 5 of them flied away and after some time, 3 birds came back. At that time there were 12 birds sitting on the wire. How many birds were there at the very beginning?

A) 8 B) 9 C) 10 D) 12 E) 14

6. Which numbers are inside a rectangle and inside a circle but not inside a triangle at the same time?



A) 5 and 11 B) 1 and 10 C) 13 D) 3 and 9 E) 6, 7 and 4

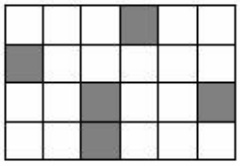
7. Buildings on Color Street are numbered from 1 to 5 (see the picture).

Each building is colored with one of the following colors: blue, red, yellow, pink, and green. It is known that:

– The red building neighbours with the blue one only.
– The blue building is between the red one and the green one.

What is the color of the building numbered with 3?

A) Blue B) Red C) Yellow D) Pink E) Green



8. How many white squares need to be shaded so that the number of shaded squares equals exactly to half of the number of white squares?

A) 2 B) 3 C) 4 D) 6 E) It is impossible to calculate it.

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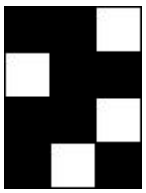
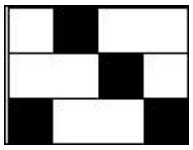
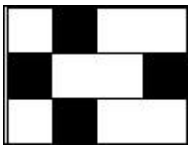
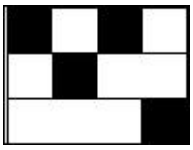
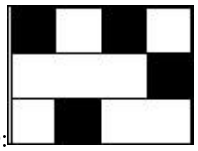
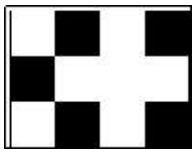
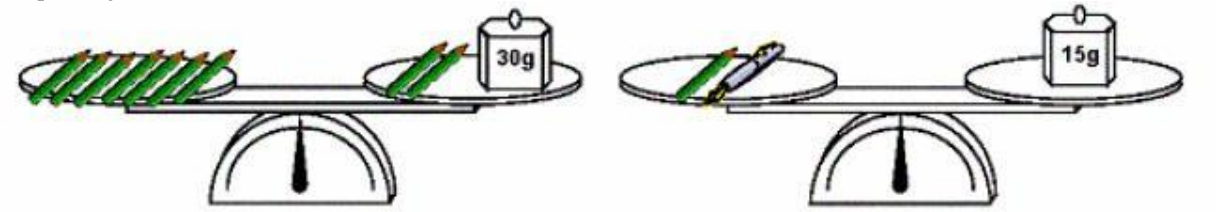
4 points each

9. Five identical sheets of a plastic rectangles were divided into white and black squares. Which of the sheets from A to E has to be covered with the sheet to the right in order to get totally black rectangle?



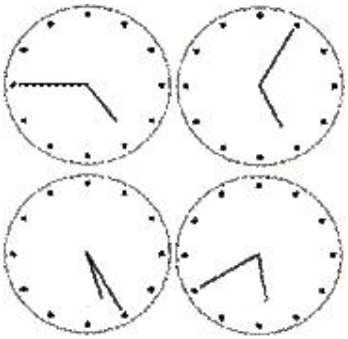
A: 
B: 
C: 
D: 
E: 

10. The scales in the pictures had been balanced. There are pencils and a pen on the arms of the scales. What is the weight of the pen in grams?



A) 6 g B) 7 g C) 8 g D) 9 g E) 10 g

11. I notice four clocks on the wall (see the picture). Only one of them shows correct time. One of them is 20 minutes ahead, another is 20 minutes late, and the other is stopped. What is the time at the moment?



A) 4:45 B) 5:05 C) 5:25 D) 5:40 E) 12:00

12. Ella brought a basket of apples and oranges for a birthday party. Guests ate half of the apples and the third part of the oranges. In the basket remained:

A) Half of all fruits B) More than half of all fruits C) Less than half of all fruits
D) A third part of all fruits E) Less than a third part of all fruits

13. Ania divided a certain number by 10 instead of multiplying it by 10. As a result she got 600. What would the result have been if she hadn't made that mistake?

A) 6 B) 60 C) 600 D) 6,000 E) 60,000

14. Kathy found a book, which was lack of certain number of sheets. When she opened the book she saw number 24 on the left side and number 45 on the right side. How many sheets between those sides were missing?

A) 9 B) 10 C) 11 D) 20 E) 21

15. Eva is 52 days older than her girlfriend Ania. Eva had her birthday on Tuesday in March of this year. On which day of the week will Ania celebrate her birthday this year?

A) Monday B) Tuesday C) Wednesday E) Thursday E) Friday

16. Into the squares of diagram numbers were placed so that the sum of the numbers in the first row is equal to

3, the sum of the numbers in the second row is equal to 8, and the sum of the numbers in the first column is equal to 4. What is the sum of the numbers in the second column?

A) 4 B) 6 C) 7 D) 8 E) 11

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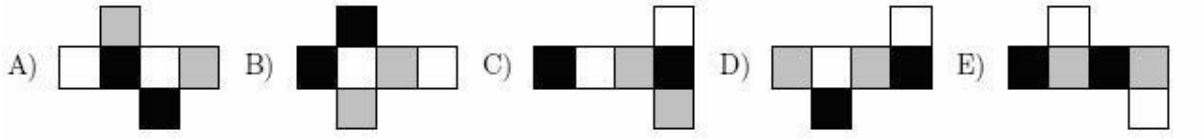
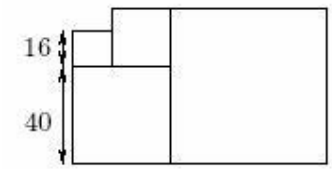
5 points each

17. The cube (see the picture) is colored with three colors so that every side of this cube is one color and every two opposite sides are the same color. From which of the patterns below this kind of cube can be made?



18. Four square tiles were arranged in a way shown in the picture. The lengths of the sides of two tiles are indicated in the picture. What is the length of the side of the largest tile?



A) 24 B) 56 C) 64 D) 81 E) 100

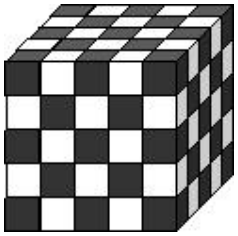
19. Girls and boys from Maria's and Mathew's class have formed a line. There are 16 students on Maria's right, and Mathew is

among them. There are 14 students on Mathew's left, and Maria is among them. There are 7 students between Maria and Mathew. How many students are in this class?

A) 37 B) 30 C) 23 D) 22 E) 16

20. The sum of the digits of the 10-digit number is 9.What is the product of the digits of this number?

A) 0 B) 1 C) 45 D) 9 x 8 x 7 x…..x 2 x 1 E) 10



21. Out of 125 small, white and black cubes, the big cube was formed (see the picture). Every two adjacent cubes have different colors. The vertices of the big cube are black. How many white cubes does the big cube contain?

A) 62 B) 63 C) 64 D) 65 E) 68

22. A lottery-ticket was 4 dollars. Three boys: Paul, Peter, and Robert made a contribiution and bought two tickets. Paul gave 1 dollar, Peter gave 3 dollars, and Robert gave 4 dollars. One of the tickets they bought was worth 1000 dollars. Boys shared the award fairly, meaning, proportionally to their contributions. How much did Peter receive?

A) 300 B) 375 C) 250 D) 750 E) 425

23. In three soccer games the Dziobak's team scored three goals and lost one. For every game won the team gets 3 points, for a tie it gets 1 point, and for the game lost it gets 0 points. For sure, the number of points the team earned in those three games was **not equal** to which of the following numbers?

A) 7 B) 6 C) 5 D) 4 E) 3

•				7
	J	K	L	56
	M	36	8	N
	T	27	6	P
6	18	R	S	42

24. In every white section of a diagram, the products of two numbers from grey sections – one from above and one from the left – was placed (for example: 42 = 7 • 6). Some of these products are represented by letters. Which two letters represent the same number?

A) L and M B) T and N C) R and P D) K and P E) M and S

back to all problems page

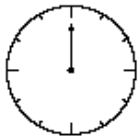
Problems 3 points each

1. A butterfly sat down on a correctly solved problem. What number did it cover up?

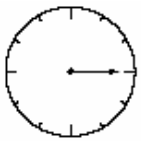
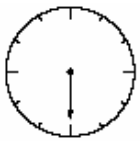
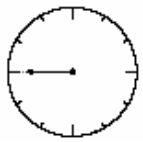
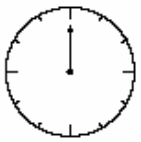
$2005 - 205 = 1300 +$ 

A) 250 B) 400 C) 500 D) 910 E) 1800

2. At noon, the minute hand of a clock is in the following position:



What will the position of the minute hand be after 17 quarters of an hour?

A) 
B) 
C) 
D) 
E) 

3. Joan bought some cookies, each of which costs 3 dollars. She gave the salesperson 10 dollars, and received 1 dollar as change. How many cookies did Joan buy?

A) 2 B) 3 C) 4 D) 5 E) 6

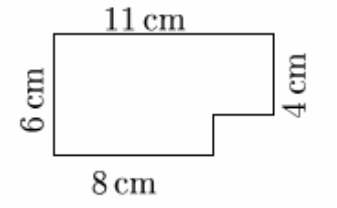
4. After the trainer's first whistle, the monkeys at the circus formed 4 rows. There were 4 monkeys in each row. After the second whistle, they rearranged themselves into 8 rows. How many monkeys were there in each row after the second whistle?

A) 1 B) 2 C) 3 D) 4 E) 5

5. Eva lives with her parents, her brother, one dog, two cats, two parrots, and four fish. What is the total number of legs that they have altogether?

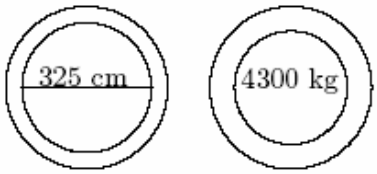
A) 22 B) 24 C) 28 D) 32 E) 40

6. John has a chocolate bar consisting of square pieces 1 cm × 1 cm in size. He has already eaten some of the corner pieces (see the picture). How many pieces does John have left?



A) 66 B) 64 C) 62 D) 60 E) 58

7. Two traffic signs mark the bridge in my village (see the picture below). These signs indicate the maximum vehicle width and the maximum vehicle weight allowed on the bridge. Which one of the following trucks is allowed to cross that bridge?



A) It is 315 cm wide and it weights 4400 kg.
B) It is 330 cm wide and it weights 4250 kg.
C) It is 325 cm wide and it weights 4400 kg.
D) It is 330 cm wide and it weights 4200 kg.
E) It is 325 cm wide and it weights 4250 kg.

8. Each of seven boys has paid the same amount of money for a trip. The total sum of what they paid is a three digit number, which can be written as **3□0**. What is the middle digit of this number?

A) 3 B) 4 C) 5 D) 6 E) 7

Problems 4 points each

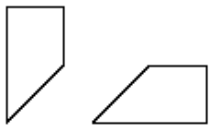
9. What is the smallest possible number of children in a family where each child has at least one brother and at least one sister?

A) 2 B) 3 C) 4 D) 5 E) 6

10. Out of all five numbers below, I chose one. The number is even and all of its digits are different. The hundreds digit is double the ones digit. The tens digit is greater than the thousands digit. Which number did I choose?

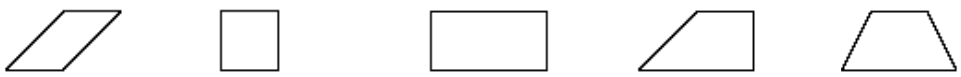
A) 1246 B) 3874 C) 4683 D) 4874 E) 8462

11. A square piece of paper has been cut into three pieces. Two of them are shown in the picture:



Which of the pieces below is the third one?

A) B) C) D) E)



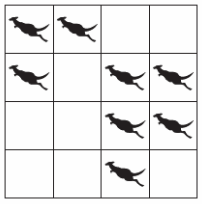
12. An elevator cannot carry more than 150 kg. Four friends weigh 60 kg, 80 kg, 80 kg, and 80 kg, respectively. What is the least number of trips necessary to carry the four friends to the highest floor?

A) 1 B) 2 C) 3 D) 4 E) 7

13. Ala has 24 dollars, Barb has 66 dollars, and Sophia has as many dollars more than Ala as she has less than Barb. How many dollars does Sophia have?

A) 33 B) 35 C) 42 D) 45 E) 48

14. There are eight kangaroos in the cells of the table (see the picture). What is the least number of the kangaroos that need to be moved to the empty cells so that there would be exactly two kangaroos in any row and in any column of the table?



A) 4 B) 3 C) 2 D) 1 E) 0

15. Greg needs to bring four full sacks of sand from the river to a house located at the other end of the village. Unfortunately, on his way through the village, half of the sand spills out of the sack through a hole. How many trips does Greg need to make from the river to the house in order to bring the required amount of sand?

A) 4 B) 5 C) 6 D) 7 E) 8

16. During a Kangaroo camp, Adam solved five problems every day, and Brad solved two problems daily. After how many days did Brad solve as many problems as Adam solved in 4 days?

A) After 5 days B) After 7 days C) After 8 days D) After 10 days E) After 20 days

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Problems 5 points each

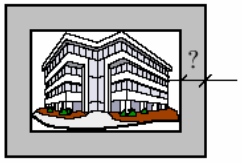
17. There were 9 pieces of paper. Some of them were cut into three pieces. As a result, there are 15 pieces of paper now. How many pieces of paper were cut?

A) 2 B) 3 C) 4 D) 5 E) 6

18. Using 6 matches, only one rectangle with a perimeter of 6 matches can be made (see the picture). How many different rectangles with a perimeter of 14 matches can be made using 14 matches?

A) 2 B) 3 C) 4 D) 6 E) 12

19. A picture frame was constructed using pieces of wood which all have the same width. What is the width of the frame if the inside perimeter of the frame is 8 decimeters less than its outside perimeter?

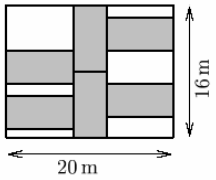


A) 1 dm B) 2 dm C) 4 dm D) 8 dm
E) It depends on the size of the picture

20. In a trunk there are 5 chests, in each chest there are 3 boxes, and in each box there are 10 gold coins. The trunk, the chests, and the boxes are locked. At least how many locks need to be opened in order to take out 50 coins?

A) 5 B) 6 C) 7 D) 8 E) 9

21. The figure shows a rectangular garden with dimensions of 16 m by 20 m. The gardener has planted six identical flowerbeds (they are gray in the diagram). What is the perimeter of each of the flowerbeds?

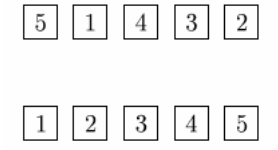


A) 20 m B) 22 m C) 24 m D) 26 m E) 28 m

22. Mike chose a three-digit number and a two-digit number. The difference of these numbers is 989. What is their sum?

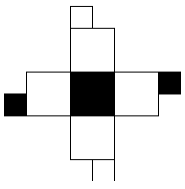
A) 1001 B) 1010 C) 2005 D) 1000 E) 1009

23. Five cards are laying on the table in the order: 5, 1, 4, 3, 2 as shown in the top row of the picture. They need to be placed in the order shown in the bottom row. In each move, any two cards may be switched. What is the least number of moves that need to be made?

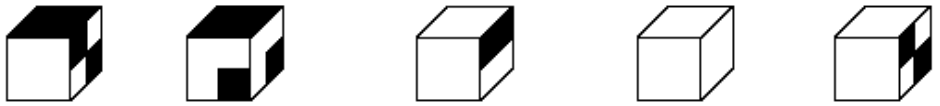


A) 2 B) 3 C) 4 D) 5 E) 6

24. Which of the cubes has the plan shown in the picture to the right?



A) B) C) D) E)



Math Kangaroo 2006 Grades 3–4

3 POINTS FOR EACH PROBLEM

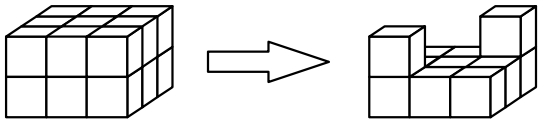
1. During a summer math camp in the city of Zakopane in Poland, a trip to Mount Giewont takes place. It takes 3 hours to get to the top of the mountain. A half an hour stay takes place on top of the mountain. Afterwards, it takes two and a half hours to come down the mountain. What time in the morning at the latest does the trip need to start so that everybody is back at the camp for lunch at 3 P.M.?

A) 8:00 B) 8:30 C) 9:00 D) 9:30 E) 10:00

2. What is the value of this expression: $2 \cdot 0 \cdot 0 \cdot 6 + 2006$? ($\cdot$ means multiplication.)

A) 0 B) 2006 C) 2014 D) 2018 E) 4012

3. How many cubes have been removed from the first block to obtain the second one?



A) 4 B) 5 C) 6 D) 7 E) 9

4. Katie's birthday was yesterday. It is Thursday tomorrow. What day was Katie's birthday?

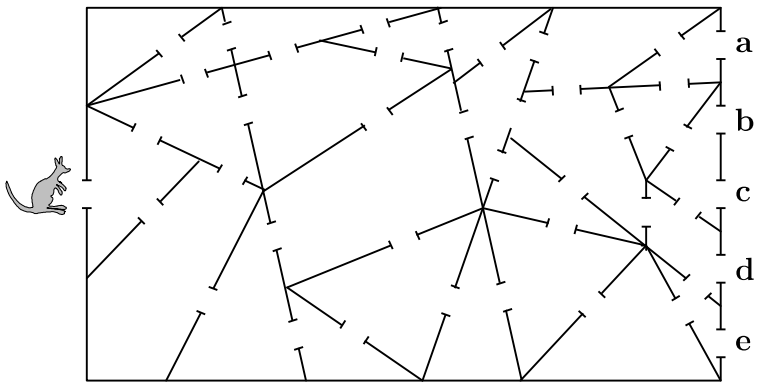
A) Tuesday B) Wednesday C) Thursday D) Saturday E) Monday

5. John plays Darts. All darts he gets back and for each time he hits the bullseye, he gains two additional darts. At the beginning he has 10 darts and at the end 20. How many times did he hit the bullseye?

A) 6 B) 8 C) 10 D) 5 E) 4

6. A kangaroo enters the building as shown in the picture. He only passes through triangular rooms. Where does he leave the building?

A) **a** B) **b** C) **c** D) **d** E) **e**



7. 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. E) 28.

Math Kangaroo 2006 Grades 3–4

8. In his wallet, Stanly has one 5-dollar bill, one 2-dollar bill, and one 1-dollar bill. Which of the following amounts can Stan not make out of the bills that he has?

A) \$3 B) \$4 C) \$6 D) \$7 E) \$8

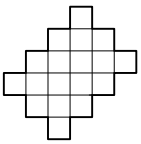
---

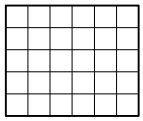
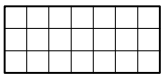
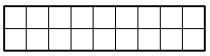
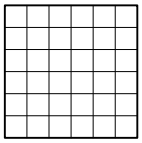
4 POINTS FOR EACH PROBLEM

9. On one side of Long Street the houses are numbered with the consecutive odd numbers from 1 to 19. On the other side of that street, the houses are numbered with the consecutive even numbers from 2 to 14. How many houses are there on Long Street?

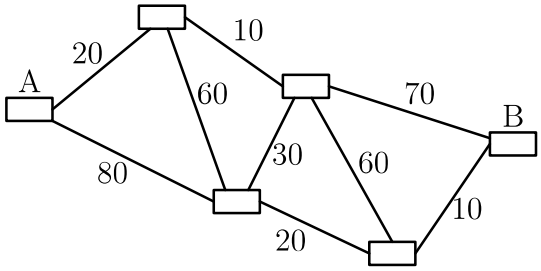
A) 8 B) 16 C) 17 D) 18 E) 33

10. From which of the figures below the figure to the left was cut out?



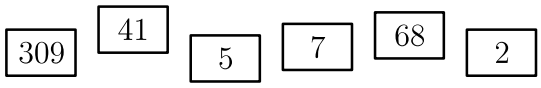
A) 
B) 
C) 
D) 
E) 

11. The picture below shows bus routes and ticket prices between 6 towns. What is the least amount of money to pay for the tickets to get from town A to town B?



A) 90 B) 100 C) 110 D) 180 E) 200

12. What is the least number we can get arranging six cards in one row, one after another, with numbers shown in the picture?



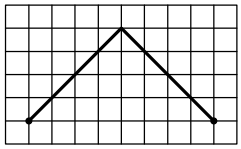
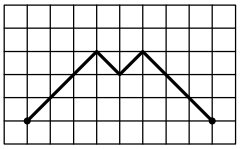
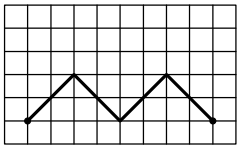
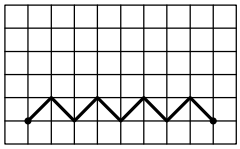
A) 1 234 567 890 B) 1 023 456 789 C) 3 097 568 241 D) 2 309 415 687 E) 2 309 415 678

13. Six weights, weighing 1 pound, 2 pounds, 3 pounds, 4 pounds, 5 pounds and 6 pounds were placed into three boxes – two weights in each box. The weights in the first box weigh 9 pounds together, and those in the second box weigh 8 pounds. Which weights are in the third box?

A) 5 and 2 B) 6 and 1 C) 3 and 1 D) 4 and 2 E) 4 and 3

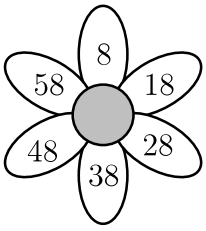
Math Kangaroo 2006 Grades 3–4

14. Between two points four routes are drawn. Which route is the shortest?

A)  B)  C)  D) 

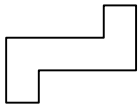
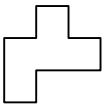
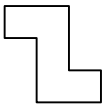
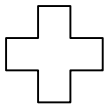
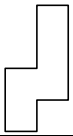
E) All are equal.

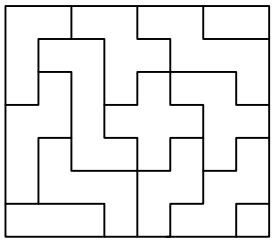
15. Numbers are written on a "number flower". Mary pulled out all the petals with numbers which give remainder 2 when divided by 6. What is the sum of the numbers on the petals that Mary pulled out?



A) 46 B) 66 C) 84 D) 86 E) 114

16. You can move or rotate each shape of the puzzles but you cannot turn them over. Which of the shapes below does not appear in the puzzle to the right?

A)  B)  C)  D)  E) 

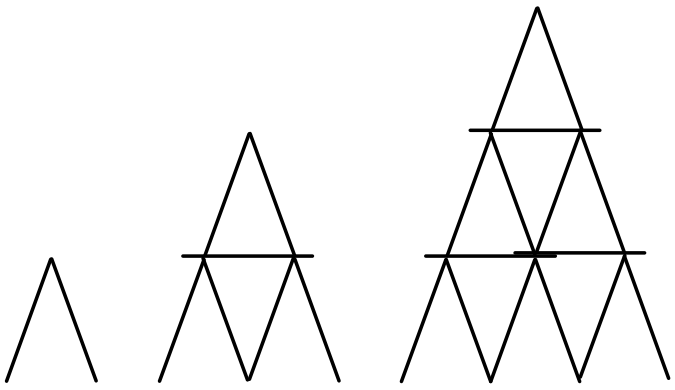


5 POINTS FOR EACH PROBLEM

17. Four crows are sitting on the fence. Their names are Dana, Hanna, Lena and Bennie. Dana sits exactly in the middle between Hanna and Lena. The distance between Hanna and Dana is the same as the distance between Lena and Bennie. Dana sits 4 feet away from Bennie. How far is Hanna sitting from Bennie?

A) 5 feet B) 6 feet C) 7 feet D) 8 feet E) 9 feet

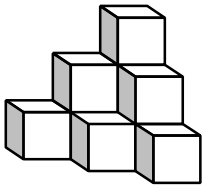
18. Johnny builds a house made out of cards. In the picture, one-floor, two-floor, and three-floor such houses are shown. How many cards does Johnny need to build 4-floor house?



A) 23 B) 24 C) 25 D) 26 E) 27

Math Kangaroo 2006 Grades 3–4

19. The structure shown in the picture is made by gluing together sides of 10 cubes. Roman painted the entire structure, including the bottom. How many faces of the cubes did he paint?



A) 18 B) 24 C) 30 D) 36 E) 42

20. Irena, Ann, Kate, Olga and Elena live in the same two-floor house. Two of the girls live on the first floor; three of them live on the second floor. Olga lives on a different floor than Kate and Elena. Ann lives on a different floor than Irena and Kate. Who lives on the first floor?

A) Kate and Elena B) Irena and Elena C) Irena and Olga
D) Irena and Kate E) Ann and Olga

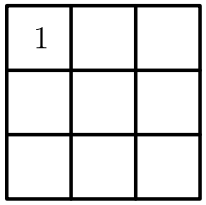
21. In the expression $2002 \square 2003 \square 2004 \square 2005 \square 2006$ instead of each $\square$ a "+" or "−" can be written. Which result is impossible?

A) 1998 B) 2001 C) 2002 D) 2004 E) 2006

22. One year in March, there were 5 Mondays. Which day of the week below could not appear in this month also five times?

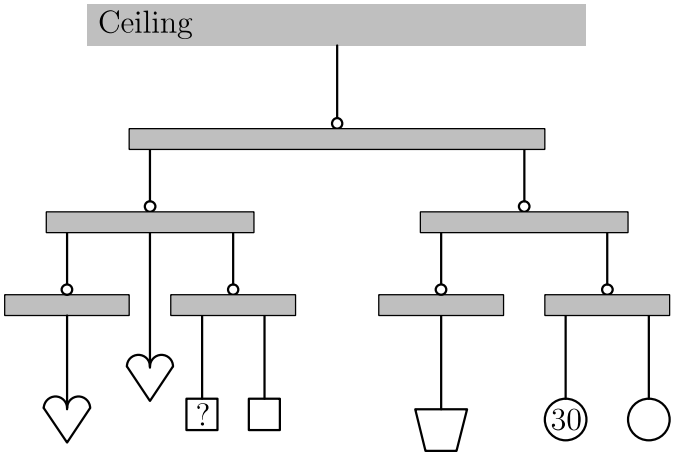
A) Saturday B) Sunday C) Tuesday D) Wednesday E) Thursday

23. In each of the nine cells of the square, write down one of the digits 1, 2 or 3. Do this in such a way that in each horizontal row and in each vertical column each of the digits 1, 2 and 3 will be written. If you start with 1 in the upper left cell, in how many different ways can the square be filled?



A) 2 B) 3 C) 4 D) 5 E) 8

24. The weights in the figure are in balance. The same shapes have the same weight. The weight of each circular shape is 30 ounces. What is the weight of the square shape indicated with the question mark?



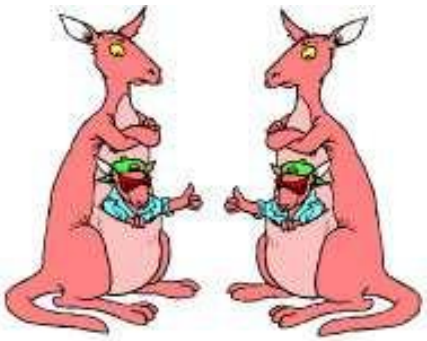
A) 10 B) 20 C) 30 D) 40 E) 50

MATHEMATICS

KANGOUROU COMPETITION

2007

NICOSIA
MARCH, 2007



KANGOUROU 2007

MATHEMATICS

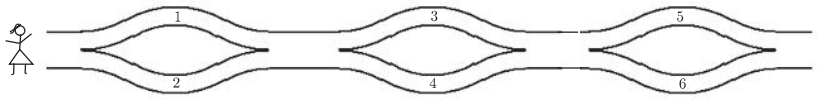
ENGLISH VERSION

LEVEL 03-04

Attention! Questions from 01-08 cary 4 points each, questions 09-16 carry 5 points each and questions 17-24 carry 6 points each. The maximum score is 120 points.

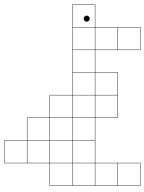
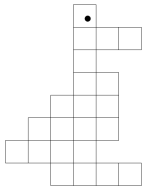
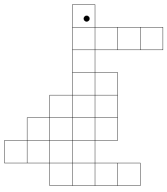
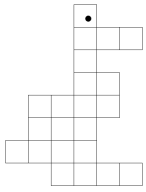
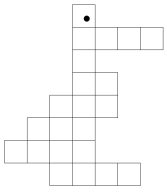
4 points questions

1. Zita walks from the left to the right and puts the numbers in her basket. Which of the following numbers can be in her basket?



A) 1, 2 and 4 B) 2, 3 and 4 C) 2, 3 and 5 D) 1, 5 and 6 E) 1, 2 and 5

2. In what figure do you find the biggest number of little squares?

A) 
B) 
C) 
D) 
E) 

3. How many common letters do the words *KANGAROO* and *PROBLEM* have?

A) 1 B) 2 C) 3 D) 4 E) 5

4. What is the first number greater than 2007 such that the sum of the digits is the same?

A) 2016 B) 2115 C) 2008 D) 7002 E) 2070

5. There are 9 lampposts on one side of the path in the park. The distance between each pair of neighbouring lampposts is 8 metres. George was jumping all the way from the first lamppost to the last one. How many metres has he jumped?

A) 48 B) 56 C) 64 D) 72 E) 80

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6. The combination for opening a safe is a three digit number made up of different digits. How many different combinations can you make using only digits 1, 3 and 5?

A) 2 B) 3 C) 4 D) 5 E) 6

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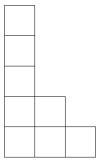
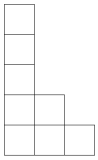
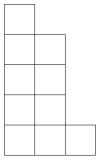
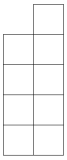
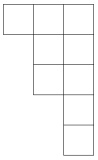
7. What is the piece that fits together with the given one to form a rectangle?



A) 
B) 
C) 
D) 
E) 

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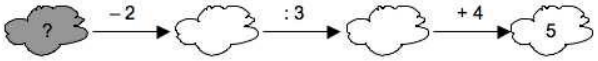
8. Which number needs to be put into the dark cloud, to have all the given calculations right?



A) 1 B) 3 C) 5 D) 7 E) 9

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5 points questions

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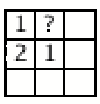
9. $$4 \times 4 + 4 + 4 + 4 + 4 + 4 \times 4 = ?$$

A) 32 B) 44 C) 48 D) 56 E) 100

---

10. In the square below the numbers 1, 2 and 3 must be written in the cells. In each row and in each column each of the numbers 1, 2 and 3 must appear. Harry started to fill in the square. Which number can be written in the cell with the question mark?



A) only 1 B) only 2 C) only 3 D) 2 or 3 E) 1, 2 or 3
