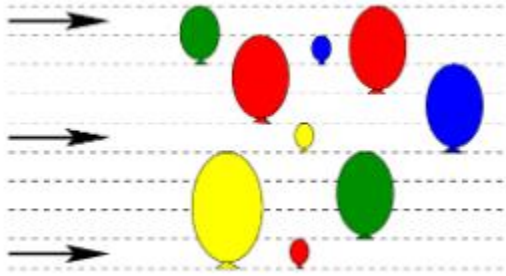


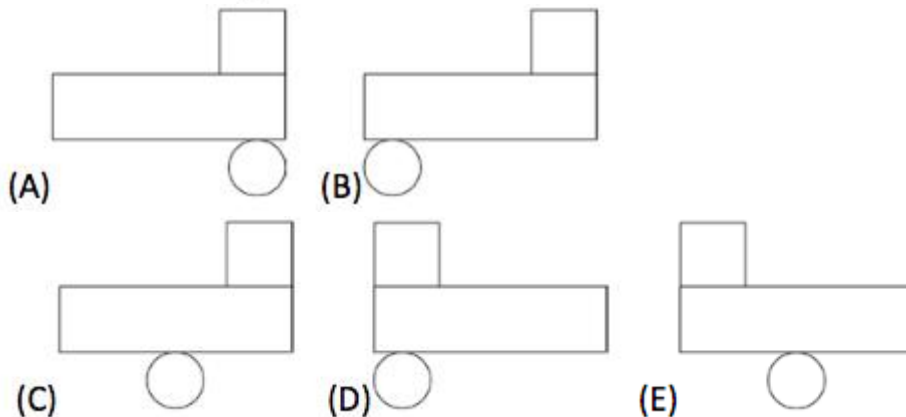
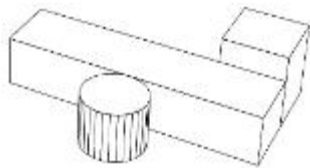
## Toán Tiếng Anh Kangaroo Lớp 5 – Số 01

1. The picture shows three flying arrows and nine fixed balloons. When an arrow hits a balloon, it bursts, and the arrow flies further in the same direction. How many balloons will be hit by the arrows?



- 2
- 3
- 4
- 5
- 6

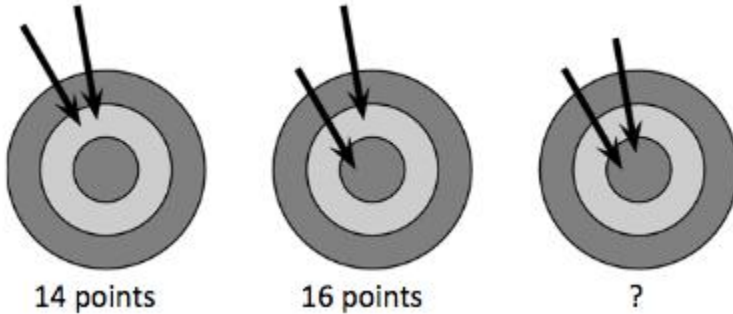
2. The image shows a structure made of three objects. What does Peter see if he looks at the structure from above?



- A
- B
- C

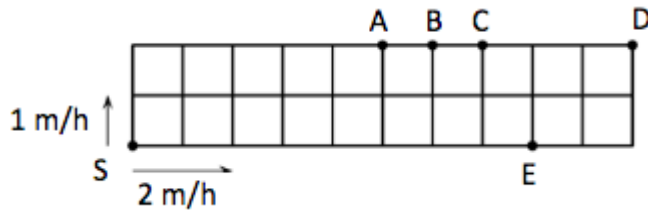
- D
- E

3. Diana played darts throwing arrows toward a target with three sections. First she got 14 points with two arrows on the target. The second time she got 16 points. How many points did she get the third time?



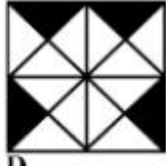
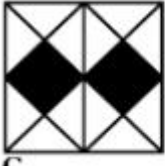
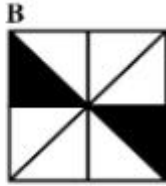
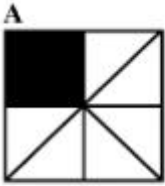
- 17
- 18
- 19
- 20
- 22

4. A garden is divided into identical squares. A fast snail and a slow snail move along the perimeter of the garden starting simultaneously from the corner S but in different directions. The slow snail moves at the speed of 1 metre per hour (1 m/h) and the fast one at 2 metres per hour (2 m/h). At what point will the two snails meet?



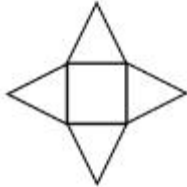
- A
- B
- C
- D
- E

5. In which of the four squares is the fraction of the black area the largest?



- A
- B
- C
- D
- E

6. A star is made out of four equilateral triangles and a square. The perimeter of the square is 36 cm. What is the perimeter of the star?



- 144 cm
- 120 cm
- 104 cm
- 90 cm
- 72 cm

7. From the list 3, 5, 2, 6, 1, 4, 7 Masha chose 3 different numbers whose sum is

8. From the same list Dasha chose 3 different numbers whose sum is 7. How many common numbers have been chosen by both girls?

- none
- 1
- 2
- 3
- impossible to determine

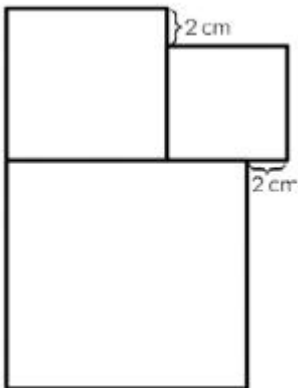
8. We move a bead along a piece of wire. What shall we see when the bead comes to the end of the wire?



- (A) (B)
- (D) (E) (C)

- A
- B
- C
- D
- E

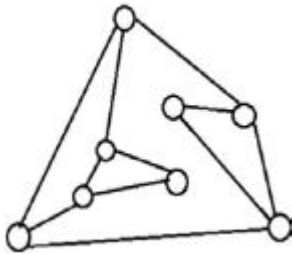
9. There are 3 squares in the figure. The side length of the smallest square is 6 cm. What is the side length of the biggest square?



- 8
- 10
- 12
- 14
- 16

10. In the following figure, the circles are light bulbs connected to some other light bulbs. Initially, all light bulbs are off. When you touch a light bulb, this light bulb and all its neighbours (e.g., the light bulbs connected to it) are lit. At least

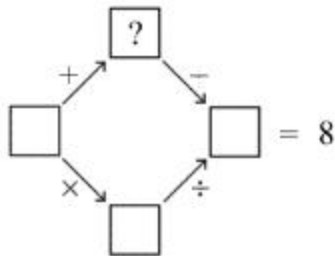
how many light bulbs do you have to touch to turn on all the light bulbs?



- 2
- 3
- 4
- 5
- 6

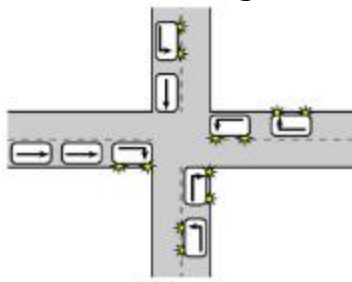
**11. Part B: Each correct answer is worth 4 points**

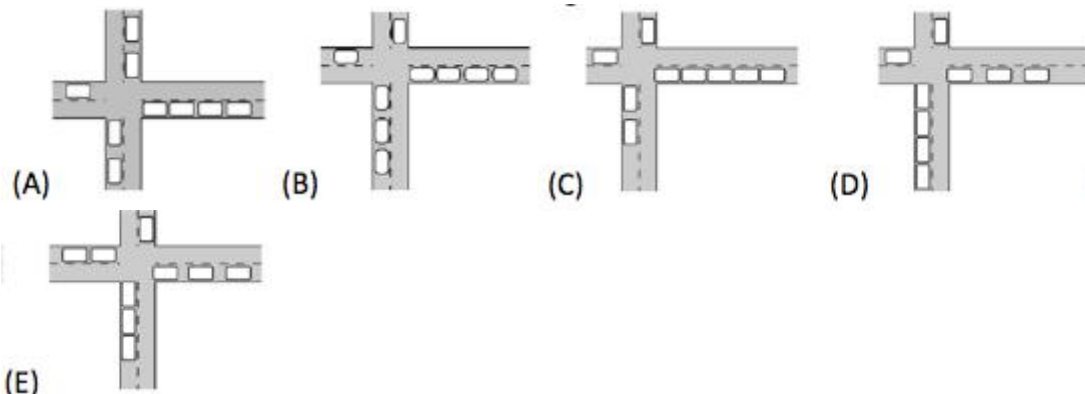
Each square contains one of the numbers 1, 2, 3, 4, or 5, so that both of the calculations following the arrows are correct. A number may be used more than once. What number goes into the box with the question mark?



- 1
- 2
- 3
- 4
- 5

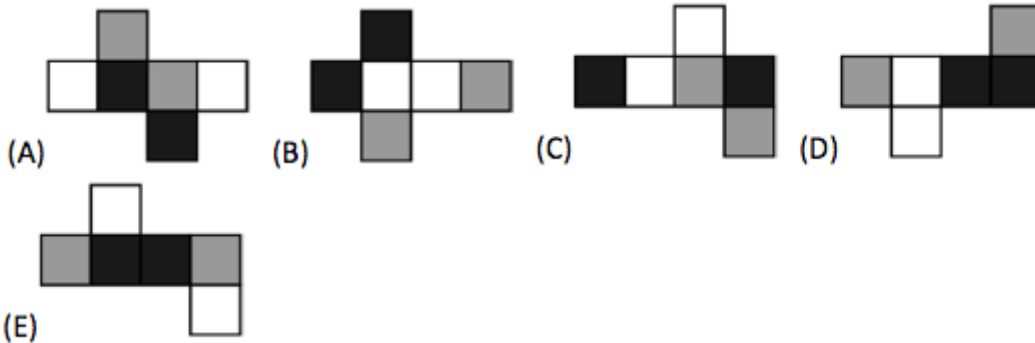
12. Nine cars arrive at a crossroads and drive off as indicated by the arrows. Which figure shows these cars after leaving the crossroads?





- (A)
- (B)
- (C)
- (D)
- (E)

13. The faces of a cube are painted black, white or grey so that opposite faces are of different colour. Which of the following is not a possible net of this cube?



- (A)
- (B)
- (C)
- (D)
- (E)

14. In a box there are many one-euro, two-euro and five-euro coins. A dispenser draws coins out of the box – one at a time, and stops when three identical coins are taken out. What is the largest possible amount that can be withdrawn?

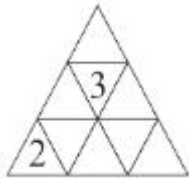
- 24
- 23

- 22
- 21
- 15

15. Two girls, Eva and Olga and three boys, Adam, Isaac and Urban play with a ball. When a girl has the ball, she throws it to the other girl or to a boy. When a boy has the ball, he throws it to another boy but never to the boy from whom he just received it. Eva starts by throwing the ball to Adam. Who will do the fifth throw?

- Adam
- Eva
- Issac
- Olga
- Urban

16. Emily wants to enter a number into each cell of the triangular table. The sum of the numbers in any two cells with a common edge must be the same. She has already entered two numbers. What is the sum of all the numbers in the table?



- 18
- 20
- 21
- 22
- impossible to determine

17. John coded a correct addition calculation naming the digits A, B, C and D. Which digit is represented by B?

$$\begin{array}{r}
 \phantom{+} A B C \\
 + C B A \\
 \hline
 D D D D
 \end{array}$$

- 0
- 2
- 4

- 5
- 6

18. On Monday Alexandra shares a picture with 5 friends. For several days, everybody who receives the picture, sends it once on the next day to two friends. On which day does the number of people who have seen the picture (including Alexandra) become greater than 75, if it is known that no one receives the picture more than once?

- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

19. The sum of the ages of Kate and her mother is 36, and the sum of the ages of her mother and her grandmother is 81. How old was the grandmother when Kate was born?

- 28
- 38
- 45
- 53
- 56

20. Annie replaced the letters with numbers in the word KANGAROO (identical letters with the same digits, different letters with different digits) so that she got the largest possible 8-digit number, which is not a multiple of 4. What is the sum of the last three digits replacing the word ROO?

- 13
- 14
- 12
- 15
- 11

21.

**Part C: Each correct answer is worth 5 points.**

Captain Hook has plundered a safe that contains 2520 gold coins. During the night, each of his pirates secretly took out some coins just for themselves. The first one took out  $\frac{1}{2}$  of the coins, the second one  $\frac{1}{3}$  of the remaining coins, the third one  $\frac{1}{4}$  of the remaining coins and so on. When Captain Hook opened



the safe in the morning, he found only 252 coins inside. How many pirates are commanded by Captain Hook?

- 8
- 9
- 10
- 11
- 12

22. In the figure on the right, the five balls A, B, C, D and E weigh 30, 50, 50, 50 and 80 grams, but not necessarily in this order. Which ball weighs 30 grams?



- A
- B
- C
- D
- E

23. If A, B, C are distinct digits, which of the following numbers cannot be the largest possible 6-digit number written using three digits A, two digits B, and one digit C?

- AAABBC
- CAAABB
- BBAAAC
- AAABCB
- AAACBB

24. In the World of Numbers, there are many number-machines, which work in the following way: the machine adds the two beginning digits of the number and replaces them by their sum. For example, beginning with the number 87312 and using six such machines we obtain:

$$87312 \rightarrow 15312 \rightarrow 6312 \rightarrow 912 \rightarrow 102 \rightarrow 12 \rightarrow 3$$

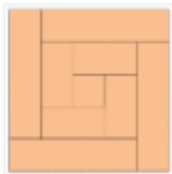
How many such machines should be used in order to get the number  $\underbrace{9\dots9}_{50 \text{ times}}$  from the number  $\underbrace{9\dots9}_{100 \text{ times}}$

- 50
- 60
- 100
- 80
- Not possible to obtain this number

25. Nick wants to arrange the numbers 2, 3, 4, ..., 10 into several groups such that the sum of the numbers in each group is the same. What is the largest number of groups he can get?

- 2
- 3
- 4
- 6
- other answer

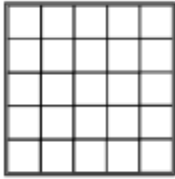
26. Peter cut an 8-cm wide wooden plank with a saw into 9 parts across the width of the plank. One piece was a square, the other were rectangles. Then he arranged all the pieces together as shown in the picture. What was the length of the plank?



- 150 cm
- 168 cm
- 196 cm
- 200 cm
- 232 cm

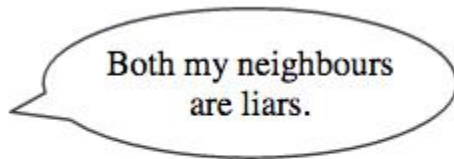
27. Write 0 or 1 in each cell of the  $5 \times 5$  table so that each  $2 \times 2$  square of the  $5 \times 5$  table contain exactly 3 equal numbers. What is the largest possible sum of all

the numbers in the table?



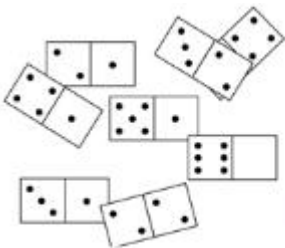
- 22
- 21
- 19
- 17
- 15

28. 14 people are seated at a round table. Each person is either a liar or tells the truth. Everybody says: "Both my neighbours are liars". What is the maximum number of liars at the table?

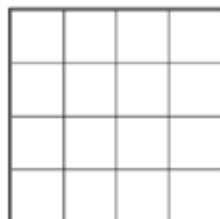


- 7
- 8
- 9
- 10
- 14

29. There are eight domino tiles on the table (pic 1). One half of one tile is covered. The 8 tiles can be arranged into a 4x4 square (pic 2), so that the number of dots in each row and column is the same.



pic 1

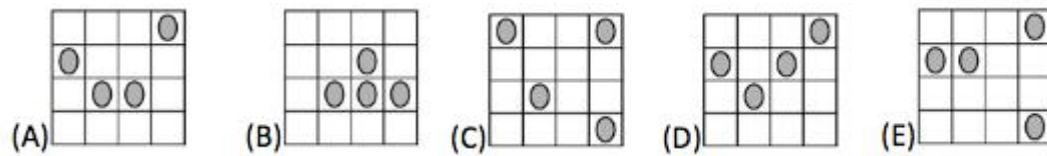
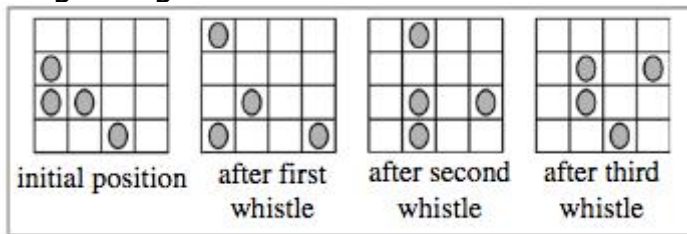


pic 2

How many dots are on the covered part?

- 1
- 2
- 3
- 4
- 5

30. Four ladybugs sit on different cells of a 4×4 grid. One of them is sleeping and does not move. Each time you whistle, the other three ladybugs move to a free neighbouring cell. They can move up, down, right or left but they are not allowed to go back to the cell they just came from. Which of the following images might show the result after the fourth whistle?



- A
- B
- C
- D
- E

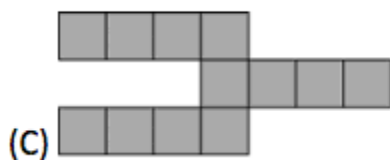
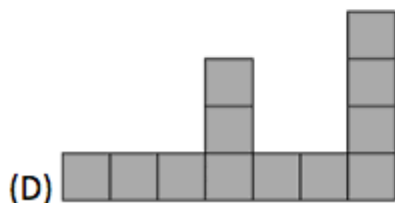
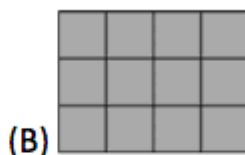
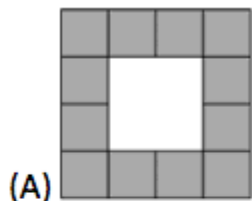
## Toán Tiếng Anh Kangaroo Lớp 5 – Số 02

### 1. Part A: Each correct answer is worth 3 points

A fly has 6 legs, a spider has 8 legs. Together, 3 flies and 2 spiders have as many legs as 9 chickens and several cats. How many cats are there?

- 2 cats
- 3 cats
- 4 cats
- 5 cats
- 6 cats

2. Alice has 4 pieces of this shape: . Which picture can she not make from these four pieces?



- A
- B
- C
- D
- E

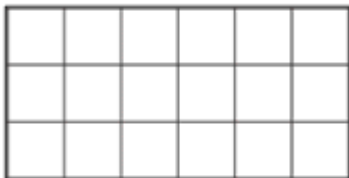
3. Kalle knows that  $1111 \times 1111 = 1234321$ . What is the answer of  $1111 \times 2222$ ?

- 3456543
- 2346642
- 2457642
- 2468642
- 4321234

4. There are 10 islands and 12 bridges, as depicted in the figure. All bridges are open for traffic right now. What is the smallest number of bridges that must be closed in order to stop the traffic between A and B?

- 1
- 2
- 3
- 4
- 5

5. Martin wants to colour the squares of the rectangle so that  $\frac{1}{3}$  of all squares are blue and half of all squares are yellow. The rest of the squares are to be coloured red.



How many squares will he colour red?

- 1
- 2
- 3
- 4
- 5

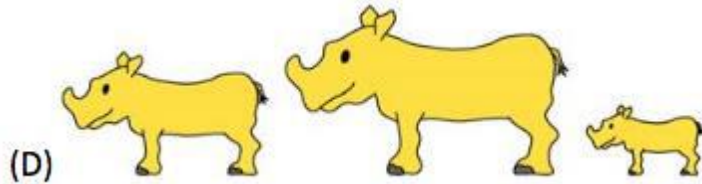
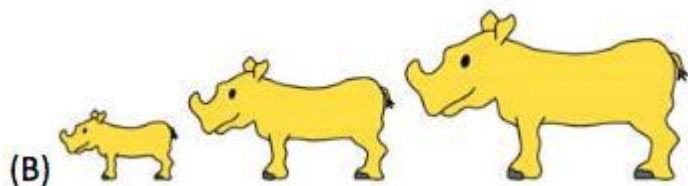
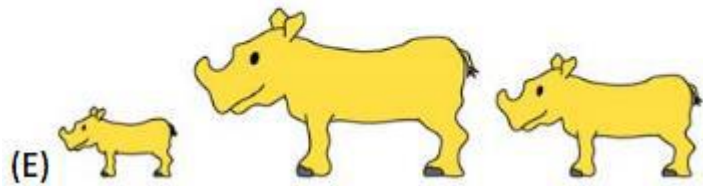
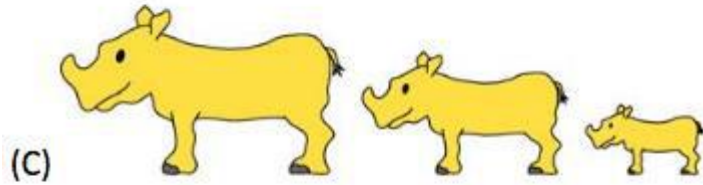
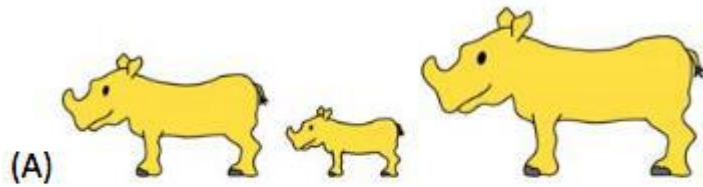
6. When the car wheels make one full rotation the car moves forward by about 1.8 meters. Approximately how many kilometres will the car move forward after 10,000 full rotations of the wheels?

- 1.8
- 18
- 180
- 1800
- 18000

7. There are 32 students in Mrs. Vicky's class. Part of the students took one pencil each from the box with pencils on the teacher's desk. Then a third of the remaining students took 3 pencils each, and there were no more pencils left in the box. How many pencils were there in the box at first?

- 16
- 24
- 32
- 43
- 64

8. Three rhinoceroses Jane, Kate and Lynn go for a walk: Jane first, Kate in the middle, and Lynn – last. Jane weighs 500 kg more than Kate. Kate weighs 1000 kg less than Lynn. Which of the following pictures may show Jane, Kate and Lynn in the order they walked?



- A
- B
- C
- D
- E

9. Peter and Nick are both working on "Kangaroo" contest problems. For every two problems that Peter solves, Nick manages to solve three problems. In total, the boys solved 30 problems. How many problems did Nick solve more than Peter?

- 5
- 6
- 7

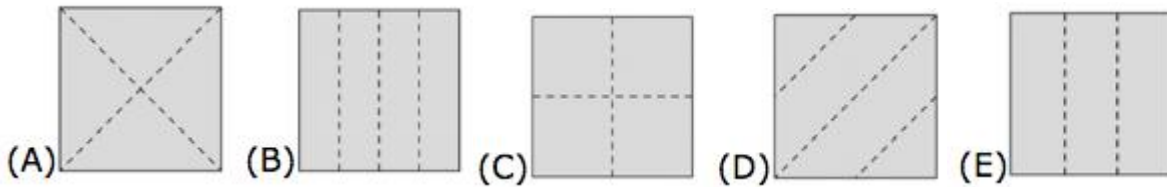


- 8
- 9

10. Bob folded a piece of paper. He drilled exactly one hole in the paper. Then he unfolded the piece of paper and saw the result as shown in the picture.



How had Bob folded his piece of paper?



- A
- B
- C
- D
- E

11. **Part B: Each correct answer is worth 4 points**

A special die has a number on each of its six faces. The sums of the numbers on opposite faces are all equal. Five of the numbers are 5, 6, 9, 11 and 14. What number is on the sixth face?

- 4
- 7
- 8
- 13
- 15

12. Tom wrote all the numbers from 1 to 20 in a row and obtained the 31-digit number 1234567891011121314151617181920.

Then he deleted 24 of the 31 digits, so that the remaining number was as large as possible. Which number was it?

- 9671819
- 9567892
- 9781920

- 9912345
- 9818192

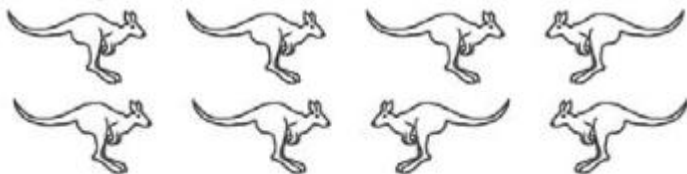
13. Peter went hiking in the mountains for 5 days. He started on Monday and his last trip was on Friday. Each day he walked 2km more than the day before. The total distance he walked during the five days was 70km. What distance did Peter walk on Thursday?

- 12 km
- 13 km
- 14 km
- 15 km
- 16 km

14. In a chocolate store, one chocolate costs \$3. One day the store had a deal: "Buy two and get a third one free" and Adam decided to take 49 chocolates. How much did he pay for the chocolates?

- \$75
- \$98
- \$99
- \$102
- \$147

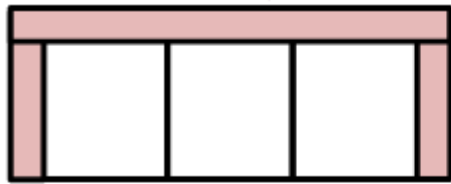
15. Eight kangaroos stood in a line as shown in the diagram.



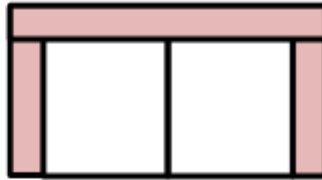
At some point, two kangaroos standing side by side and facing each other exchanged places by jumping past each other. This was repeated until no further jumps were possible. How many exchanges were made?

- 2
- 10
- 12
- 13
- 16

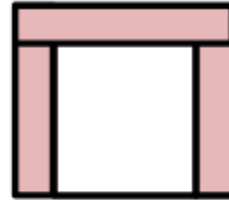
16. The Modern Sofa Furniture store is selling a sofa and a loveseat made from identical modular pieces as shown in the picture.



sofa  
220 cm wide



loveseat  
160 cm wide

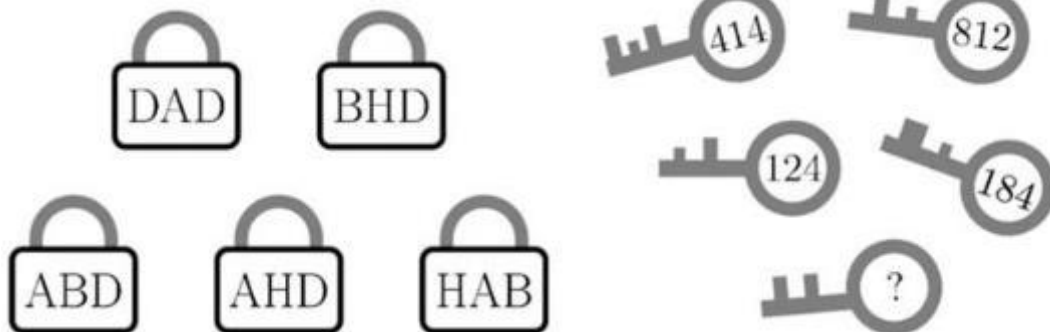


chair

The width, including the seating and the armrests, is given below each item. How wide is an armrest?

- 60 cm
- 80 cm
- 90 cm
- 100 cm
- 120 cm

17. There are five padlocks and 5 keys – one for each of them (see the figure). The number code on each key has been modified into a letter code on the corresponding padlock. Equal digits have been replaced by the same letter, and different digits – by different letters. What is the number code on the fifth key?



- 382
- 282
- 284
- 823
- 824

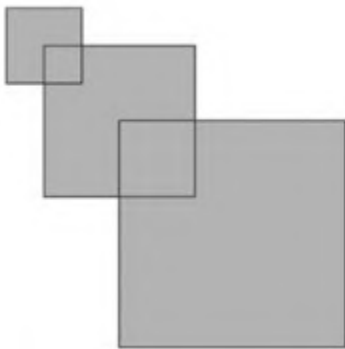
18. Boris has an amount of money and three magic wands that he can use only once. Wand A adds \$1. Wand S subtracts \$1. Wand D doubles the amount. In which order must he use these wands to obtain the largest amount of money?

- DAS
- ASD
- DSA
- ADS
- SAD

19. A vase weighs 600 g when one third of it is filled with water. The same vase weighs 800 g when two thirds of it are filled with water. What is the weight of the vase when it is empty?

- 100 g
- 200 g
- 300 g
- 400 g
- 500 g

20. afael has three squares. The first one has side length 2 cm. The second one has side length 4 cm and a vertex is placed in the centre of the first square. The last one has side length 6 cm and a vertex is placed in the centre of the second square, as shown in the picture. What is the area of the figure?



- 32 cm<sup>2</sup>
- 51 cm<sup>2</sup>
- 27 cm<sup>2</sup>
- 16 cm<sup>2</sup>
- 6 cm<sup>2</sup>

21. **Part C: Each correct answer is worth 5 points**

The natural numbers are arranged in the form of a triangle: 1 is in the first row, 2 and 3 are in the second row, 4, 5 and 6 are in the third row, and so on. What

is the sum of the numbers written in the 10-th row?

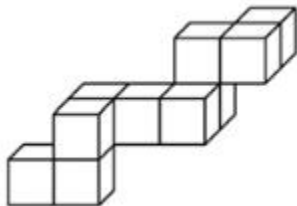
1  
2 3  
4 5 6  
⋮

- 490
- 495
- 500
- 505
- 510

22. There are eight balls numbered with the numbers 40, 80, 100, 101, 190, 200, 260 and 292 in a bag. Martina takes four balls out of the bag and calculates the sum of the numbers on these balls. It appears that this sum is half of the sum of the numbers on the balls that remain in the bag. What is the greatest number written on the balls taken out?

- 101
- 200
- 260
- 190
- 292

23. The structure on the figure is made of unit cubes glued together. Morten wants to put it into a rectangular box. What are the dimensions (length, width and height) of the smallest box he can use?



- $3 \times 3 \times 4$
- $3 \times 5 \times 5$
- $3 \times 4 \times 5$
- $4 \times 4 \times 4$
- $4 \times 4 \times 5$

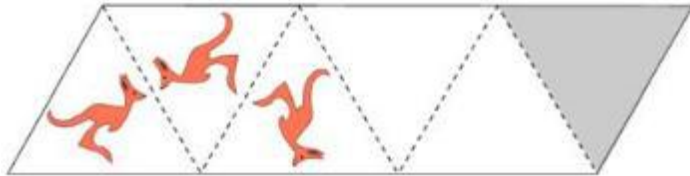
24. Four players scored goals in a handball game. All of them scored a different number of goals. One of the players, Mike, scored the least number of goals. The other three players scored 20 goals in total. What is the largest number of goals Mike could have scored?

- 2
- 3
- 4
- 5
- 6

25. Ala likes even numbers, Beata likes numbers divisible by 3, Celina likes numbers divisible by 5. Each of these three girls went separately to a basket containing 8 balls with numbers written on them, and took all the balls with numbers she liked. It turned out that Ala collected balls with numbers 32 and 52, Beata - 24, 33 and 45, Celina - 20, 25 and 35. In what order did the girls approach the basket?

- Ala, Celina, Beata
- Celina, Beata, Ala
- Beata, Ala, Celina
- Beata, Celina, Ala
- Celina, Ala, Beata

26. The picture of a kangaroo in the first (leftmost) triangle was reflected across the dotted lines, as in mirrors. The first two reflections are shown.



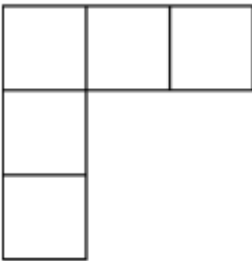
What does the reflection look like in the shaded triangle?

- (A)
- (B)
- (C)
- (D)
- (E)

- A
- B
- C
- D
- E

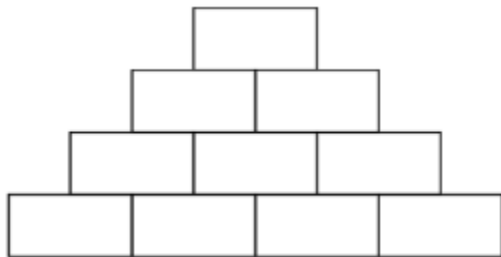
27. The numbers 1, 2, 3, 4, and 5 must be written in the five cells in the figure, respecting the following rules:

- If a number is just below another number, it must be greater.
- If a number is just to the right of another number, it must be greater. In how many ways can this be done?



- 3
- 4
- 5
- 6
- 8

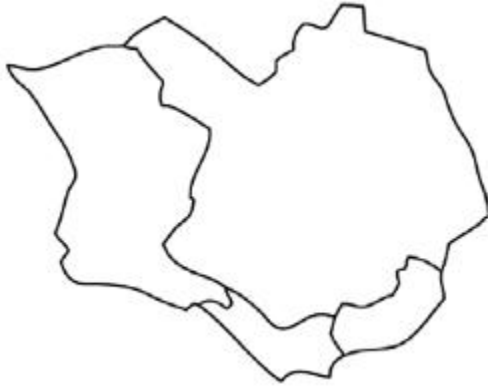
28. John wrote a natural number in each of the four boxes in the bottom row of the diagram. Then he wrote in each of the other boxes the sum of the two numbers in the boxes immediately underneath. What is the largest number of odd numbers that could appear in the completed diagram?



- 4
- 5
- 6

- 7
- 8

29. Julia has four pencils of different colours and wants to use some or all of them to paint the map of an island divided into four countries, as in the picture. Any two countries with a common border must be coloured differently on the map. How many different colourings of this map are possible? (Two colourings are considered different if at least one of the countries is coloured differently).

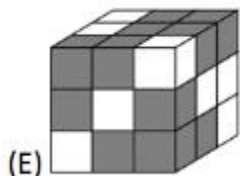
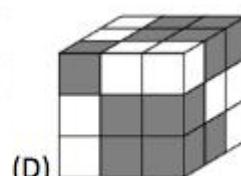
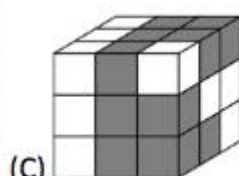
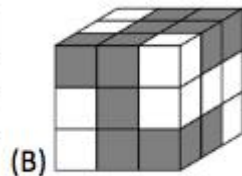
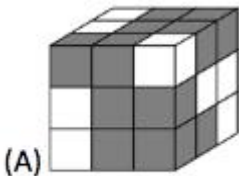


- 12
- 18
- 24
- 36
- 48

30. A bar consists of two grey cubes and one white cube glued together as shown in the figure.



Which cube can be built from nine such bars?



- A
- B



- C
- D
- E

## **Toán Tiếng Anh Kangaroo Lớp 5 – Số 03**

### **1. Part A: Each correct answer is worth 3 points**

A centipede has 25 pairs of shoes. It needs one shoe for each of its 100 feet. How many more shoes does the centipede need to buy?

- 15
- 20
- 35
- 50
- 75

2. Ahmed starts counting at the number 19 and keeps counting until 89. If he takes one second to say each number how long does it take to count all the numbers?

- 1 min 10 s
- 1 min 29 s
- 1 min 11 s
- 1 min 19 s
- 1 min exactly

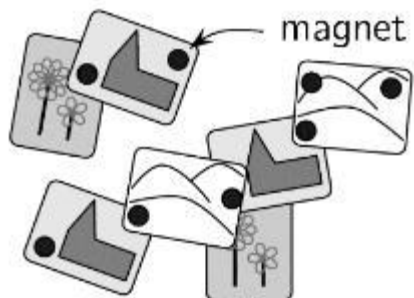
3. Mike cuts a pizza into quarters. Then he cuts every quarter into thirds. What part of the whole pizza is one of the pieces?

- a third
- a quarter
- a seventh
- an eighth
- a twelfth

4. Starting with 555 groups each containing 9 rocks we pile all these rocks together into one pile. We then divide this new pile into groups with 5 rocks each. How many new groups do we get?

- 111
- 999
- 45
- 555
- 900

5. On Lisa's refrigerator 8 strong magnets (the black circles in the picture) hold some postcards.



What is the greatest number of magnets Lisa could remove so that no postcard falls to the ground?

- 2
- 3
- 4
- 5
- 6

6. Cathy draws a square of area  $100 \text{ cm}^2$ . She joins the midpoints of the sides to make a smaller square. What is the area of the smaller square?



10 cm

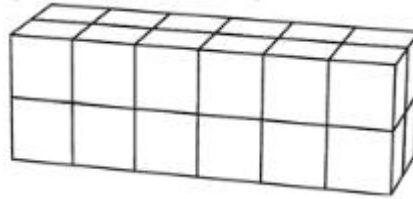
- $10 \text{ cm}^2$
- $20 \text{ cm}^2$
- $25 \text{ cm}^2$
- $40 \text{ cm}^2$
- $50 \text{ cm}^2$

7. Alice's mother wants to see a knife on the right side of each plate and a fork on the left side. What is the least number of exchanges of a knife and a fork does Alice need to make in order to please her mother?

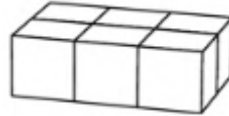


- 1
- 2
- 3
- 5
- 6

8. Tom and John build rectangular boxes using the same number of identical cubes.



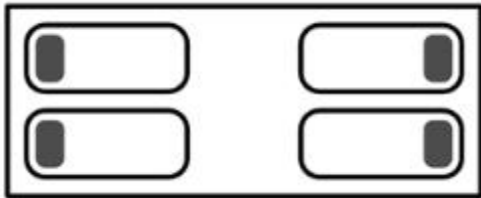
Tom's box looks like this:



The first level of John's box looks like this:  
How many levels will John's box have?

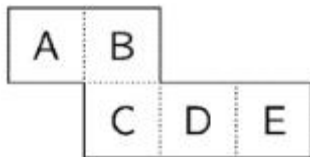
- 2
- 3
- 4
- 5
- 6

9. On the left side of the room, Bea and Pia are sleeping with their heads on their pillows facing each other. On the right side of the room, Mary and Karen are sleeping with their heads on their pillows with their backs to each other. How many girls are sleeping with their right ear on their pillow?



- 0
- 1
- 2
- 3
- 4

10. The piece of paper below is folded along the dotted lines to make an open box.



The box is put on a table with the top open. Which letter is at the bottom of the box?

- A
- B
- C
- D
- E

11. **Part B: Each correct answer is worth 4 points**

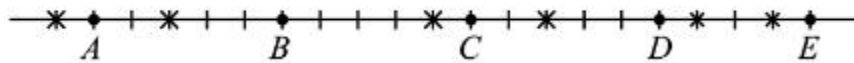
Four points A, B, C and D are given on a line, in some order, so that  $AB = 1$ ,  $BC = 2$ ,  $CD = 3$ , and  $DA = 4$ . Which two points are the farthest from each other?

- A and D
- B and D
- B and C
- A and C
- impossible to determine

12. Mary, Ann, and Nata work in a kindergarten class. Each day from Monday to Friday exactly two of them come to work. Mary works 3 days per week and Ann works 4 days per week. How many days per week does Nata work?

- 1
- 2
- 3
- 4
- 5

13. Five squirrels A, B, C, D, and E are sitting on the line. There are 6 nuts on the line as well (marked by 'x'). At the same time, and all with the same speed, the squirrels start running to the nearest nut to them. As soon as a squirrel picks a nut it starts running to the next closest nut. Which squirrel will get two nuts?



- A
- B
- C
- D
- E

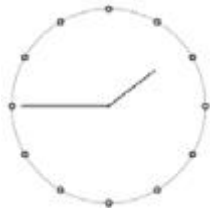
14. There are 30 students in a class. They sit in pairs so that each boy is sitting with a girl, and exactly half of the girls are sitting with a boy. How many boys are there in the class?

- 25
- 20
- 15
- 10
- 5

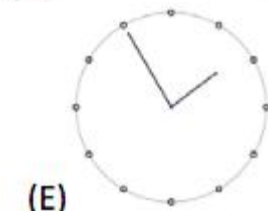
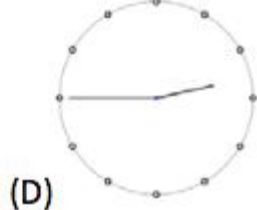
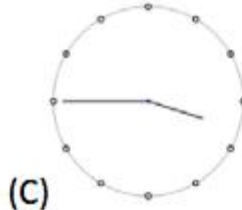
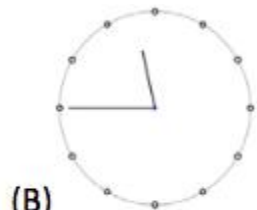
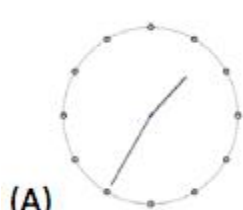
15. The number 2581953764 is written on a strip of paper. John cuts the strip twice and gets three numbers. Then he adds these 3 numbers. What is the smallest possible sum he can get?

- 2675
- 2975
- 4217
- 2978
- 4298

16. Bart is getting his haircut. When he looks in the mirror, the clock on the wall behind him looks like this:



What would he have seen if he had looked in the mirror ten minutes earlier?



- A
- B

- C
- D
- E

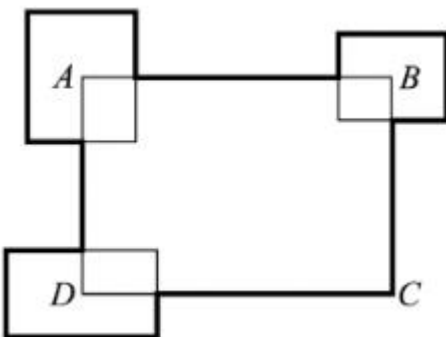
17. Jennifer bought enough cat food for her four cats to last for 12 days. On her way home she brought back two stray cats. If she gives each cat the same amount of food every day, how many days will the cat food last?

- 8
- 7
- 6
- 5
- 4

18. Tim, Tom and Jim are triplets (three brothers born on the same day), while their brother Carl is 3 years younger. Which of the following numbers could be the sum of the ages of the four brothers? (All ages are rounded to a whole year).

- 53
- 54
- 56
- 59
- 60

19. The perimeter of the rectangle ABCD is 30 cm. Three other rectangles are placed so that their centres are at the points A, B, and D (see the figure). The sum of their perimeters is 20 cm. What is the total length of the thick line?



- 50 cm
- 45 cm
- 40 cm

- 35 cm
- impossible to determine

20. Peter has 49 blue marbles and one red marble. How many marbles must Peter remove so that 90% of his marbles are blue?

- 4
- 10
- 29
- 39
- 40

21. **Part C: Each correct answer is worth 5 points**

Richard is writing down all the numbers with the following properties:

- the first digit is 1;
- each of the following digits is at least as big as the one before it;
- the sum of the digits is 5.

How many numbers will he write?

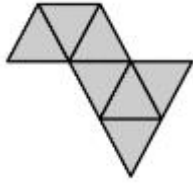
- 4
- 5
- 6
- 7
- 8

22. Luigi started a small restaurant. His friend Giacomo gave him several square tables and chairs. If he uses all the tables as single tables with 4 chairs each, he would need 6 more chairs. If he uses all the tables as double tables with 6 chairs each, he would have 4 chairs left over. How many tables did Luigi get from Giacomo?

- 8
- 10
- 12
- 14
- 16

23. Clara wants to construct a big triangle using identical small triangular tiles. She has already put some tiles together as shown in the picture.





What is the minimum number of additional tiles required to complete a triangle?

- 5
- 9
- 12
- 15
- 18

24. A big cube was built from 8 identical small cubes, some black ones and some white ones. Five faces of the big cube, seen from some viewpoint, are:



What does the sixth face of the big cube look like?



- A
- B
- C
- D
- E

25. The symbols,  $\bigcirc$ ,  $\square$ , and  $\triangle$  represent three different digits. If you add the digits of the three-digit number  $\bigcirc\square\bigcirc$ , the result is the two-digit number  $\square\bigcirc$ . If you add the digits of the two-digit number  $\square\triangle$ , you get the one-digit number  $\square$ . Which digit does  $\bigcirc$  represent?

- 4
- 5
- 6
- 8
- 9

26. A little Kangaroo is playing with his calculator allowing only operations on integers with an integer result. He starts with the number 12. He multiplies or divides the number by 2 or 3 (if possible) 60 times in a row. Which of the following results cannot be obtained?

- 12
- 18
- 36
- 72
- 108

27. Two three-digit numbers have all their six digits distinct. The first digit of the second number is twice the last digit of the first number. What is the smallest possible sum of two such numbers?

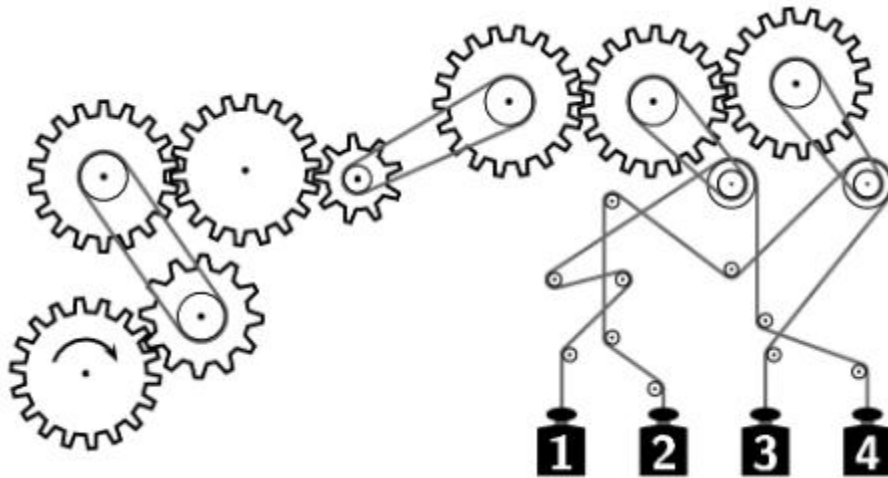
- 552
- 546
- 301
- 535
- 537

28. We want to insert the numbers 1, 2, 3, 4, 5, 6, 8, and 9 into the empty boxes below so that the sum of the numbers in each row, in each column, and in both the diagonals adds up to the same amount. What is the sum of the four numbers in the shaded boxes?

		7

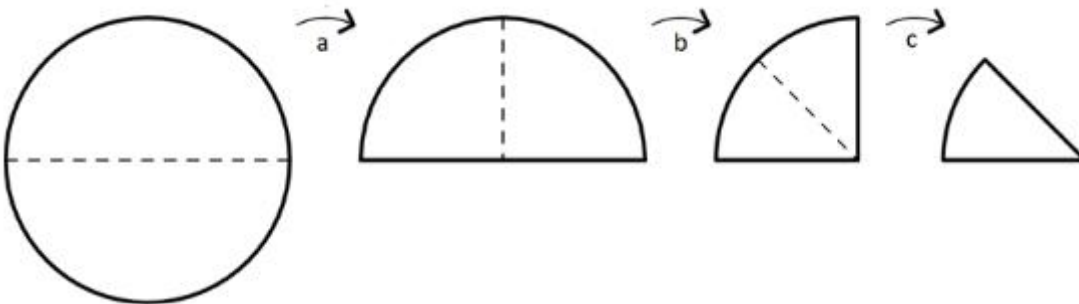
- 21
- 22
- 25
- 26
- 27

29. Which of the weights are going upwards when the lower left wheel is turned clockwise as indicated?

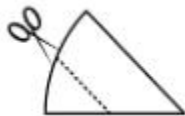


- 1 and 2
- 3 and 4
- 1 and 3
- 2 and 4
- 1 and 4

30. Eugénie folded a round sheet of paper in half, three times, along the dotted lines, as shown in a, b and c below.



Then she cut the folded paper along the marked line, parallel to the folding line, as shown to the right.



Finally, Eugénie unfolded the paper. What shape did she obtain?

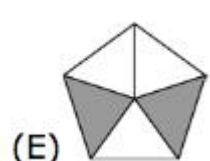
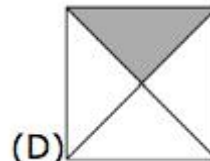
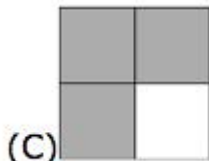
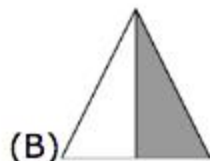
- (A) (B) (C) (D) (E)

- A
- B
- C
- D
- E

## Toán Tiếng Anh Kangaroo Lớp 5 – Số 04

### 1. Part A: Each correct answer is worth 3 points

In which of the figures is exactly one half of the area shaded?



- A
- B
- C
- D
- E

2. My umbrella has KANGAROO written on top, as shown on the picture.



Which of the following pictures below also shows my umbrella?

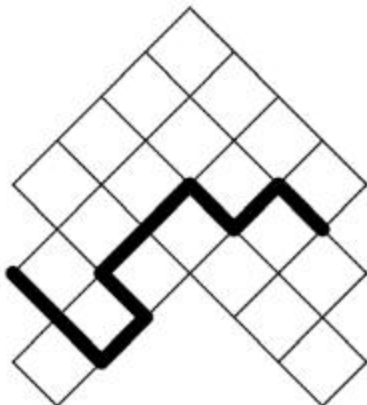


- (A)
- (B)
- (C)
- (D)
- (E)

3. There are ten ducks. Five of these ducks each lay an egg every day. The other five ducks each lay an egg every second day. How many eggs in total do the ten ducks lay in a period of 10 days?

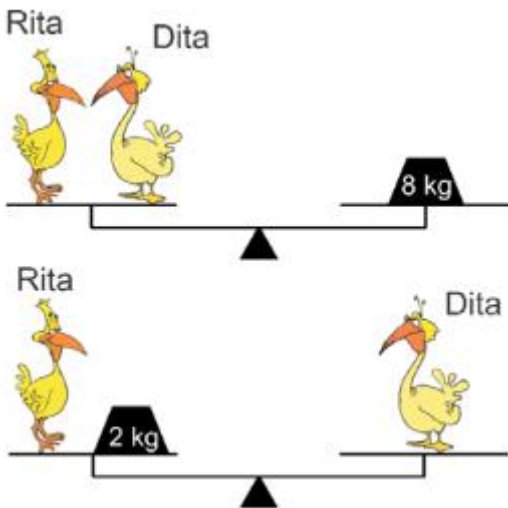
- 75
- 60
- 50
- 25
- 10

4. The figure shows a board where each small square has an area of 4 cm<sup>2</sup>. What is the length of the thick black line?



- 16 cm
- 18 cm
- 20 cm
- 21 cm
- 36 cm

5. The two pictures of the balanced scales show the birds Rita and Dita.



How much does Dita weigh?

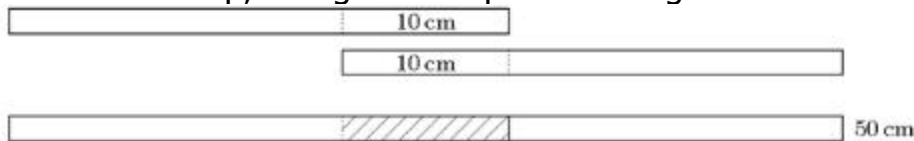
- 2 kg
  - 3 kg
  - 4 kg
  - 5 kg
  - 6 kg
6. Which of the following fractions is smaller than 2?
- $\frac{19}{8}$
  - $\frac{20}{9}$
  - $\frac{21}{10}$
  - $\frac{22}{11}$
  - $\frac{23}{12}$

7. Each plant in John's garden has either 5 leaves only, or 2 leaves and 1 flower. In total, the plants have 6 flowers and 32 leaves. How many plants are there?



- 10
- 12
- 13
- 15
- 16

8. Alva has 4 paper strips of the same length. She glues 2 of them together with a 10 cm overlap, and gets a strip 50 cm long.



With the other two paper strips, she wants to make a 56 cm long strip. How long should the overlap be?

- 4 cm
- 6 cm
- 8 cm
- 10 cm
- 12 cm

9. Nine flowers are planted in a row, same distance apart between any two adjacent flowers. The distance between the first and the third flower is 60 cm. What is the distance between the first and the last flower?

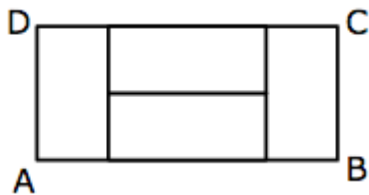
- 1m 60cm
- 1m 80cm
- 2m 20cm
- 2m 40cm
- 2m 70cm

10. Lisa has 90 marbles. Anna has 10 more marbles than Lisa but 50 less marbles than Olle. How many marbles do they have together?

- 100
- 150
- 240
- 250
- 340

**11. Part B: Each correct answer is worth 4 points**

In the picture, the rectangle ABCD is constructed from four identical rectangles. If the length of the segment BC is 1 cm, what is the length of the segment AB?



- 4 cm
- 3 cm
- 2 cm
- 1 cm
- 0.5 cm

12. Lucy and her mother were both born in January. On March 29, 2015, Lucy adds the year of her birth, the year of her mother's birth, her age, and her mother's age. What is the result?

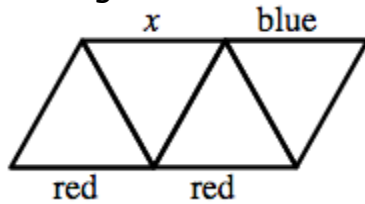
- 4028
- 4029
- 4030
- 4031
- 4032

13. A rectangle has an area of  $12 \text{ cm}^2$ . Its sides are of integer lengths in centimetres. Which of the following values could be the perimeter of the rectangle?

- 20 cm
- 26 cm
- 28 cm
- 32 cm
- 48 cm



14. Each of the 9 line segments in the figure is to be coloured either blue, green or red. The three sides of each triangle are to have three different colours. Three of the line segments have already been coloured, as shown. What colour can the line segment marked with x have?



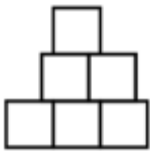
- only blue
  - only green
  - only red
  - either blue, green or red
  - such a colouring is not possible
15. Carla wants to fold a cube from a paper net. By mistake she drew 7 squares instead of 6 squares. Which square(s) can she remove so that the figure remains connected and Carla can fold a cube from it?
- only 4
  - only 7
  - either 3 or 4
  - either 3 or 7
  - either 3, 4 or 7
16. The number 100 is multiplied either by 2 or by 3, then the result is increased either by 1 or by 2, and then the new result is divided either by 3 or by 4. If the final result is a natural number, what is this final result?
- 50
  - 51
  - 67
  - 68
  - There is more than one possible final result
17. In a four-digit number  $\overline{ABCD}$ , the digits A, B, C and D are in increasing order from left to right. What is the largest possible difference  $\overline{BD} - \overline{AC}$  of the two-digit numbers  $\overline{BD}$  and  $\overline{AC}$ ?
- 86
  - 61

- 56
- 50
- 16

18. Kangarina discovered that someone had eaten her jar of honey. She suspected one of her four neighbours: the antelope Anty, the bear Beary, the fox Foxy or the lion Leo. Anty stated that Beary ate the honey. Beary stated that it was Leo. Foxy and Leo denied eating the honey. Who ate the honey if only one of them is telling the truth?

- Foxy
- Beary
- Anty
- Leo
- There is not enough information to be conclusive

19. Tom used 6 squares with sides of length 1 to form the shape in the picture. What is the perimeter of the shape?



- 13
- 12
- 11
- 10
- 9

20. **Part C: Each correct answer is worth 5 points**

Square paper sheets of two sizes are needed for an art project. How many of the smaller sheets are needed to cover one of the larger sheets if it is known that the perimeter of one of the larger sheets is eight times as great as the perimeter of one of the smaller sheets?

- 64
- 48
- 32

16

8

21. On Jump Street, there are 9 houses in a row. At least one person lives in each house. Any two neighbouring houses together are inhabited by at most six people. What is the largest number of people that could be living on Jump Street?

23

25

27

29

31

22. In a bag there are 3 green apples, 5 yellow apples, 7 green pears and 2 yellow pears. Simon randomly is taking fruits out of the bag one by one. How many fruits must he take out in order to be certain that he has at least one apple and one pear of the same colour?

9

10

11

12

13

23. Two cats, Tom and Bob, caught together 42 mice in three days. Each day, Tom caught twice as many mice as in the previous day, while Bob caught two more mice than in the previous day. Nonetheless, both cats caught the same number of mice for the three days. How many mice did Tom and Bob catch together during the first day?

5

7

8

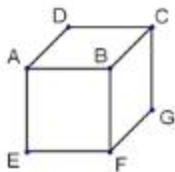
9

10

24. Five children were standing in a line and holding 37 balloons in total. All children who were to the right of Andrew had together 14 balloons; all children standing to the right of Bob had together 32 balloons; the ones to the right of Clara – a total of 20 balloons, and to the right of Danny – 8 balloons. How many balloons did Clara hold?

- 5
- 6
- 8
- 12
- 16

25. Mary wrote a number on each face of a cube. Then, for each vertex, she added the numbers on the three faces sharing that vertex (for example, for vertex B she added the numbers on faces BCDA, BAEF and BFGC). The numbers computed by Mary for vertices C, D and E were 14, 16 and 24, respectively. What number did she compute for vertex F?



- 15
- 19
- 22
- 24
- 26

26. A train has 12 coaches. Each coach has the same number of compartments. Mike is travelling in the third coach and in the 18<sup>th</sup> compartment from the engine. Jane sat in the 7<sup>th</sup> coach in the 50<sup>th</sup> compartment from the engine. How many compartments are there in each coach?

- 7
- 8
- 9
- 10
- 12

27. In how many ways can you place the three kangaroos in three different cells, out of the seven cells below, so that no two kangaroos are neighbours?



- 7
- 8

- 9
- 10
- 11

28. Four points lie on a line. The distances between them are, in increasing order: 2, 3,  $k$ , 11, 12, 14. What is the value of  $k$ ?

- 5
- 6
- 7
- 8
- 9

29. Basil used small cubes with side 1 to construct a cube with side 4. After that, he painted 3 faces of the big cube red and the other 3 faces blue. After he finished, there was no small cube with 3 red faces. How many small cubes have both red and blue faces?

- 0
- 8
- 12
- 24
- 32

### **Toán Tiếng Anh Kangaroo Lớp 5 – Số 05**

1. A cake weighs 900g. Paul cuts it into 4 pieces. The weight of the largest piece is the same as the total weight of the other three pieces. What is the weight of the largest piece?

- 250 g
- 300 g
- 400 g
- 450 g
- 600 g

2. Two big rings – one grey, one white – are linked to each other. Peter, in front of the rings, sees the rings as in the picture:



Paul is behind the rings. What does he see?



- A
- B
- C
- D
- E

3. In the following addition, some of the digits have been replaced by stars.

$$\begin{array}{r}
 1\star 2 \\
 1\star 3 \\
 1\star 4 \\
 \hline
 309
 \end{array}$$

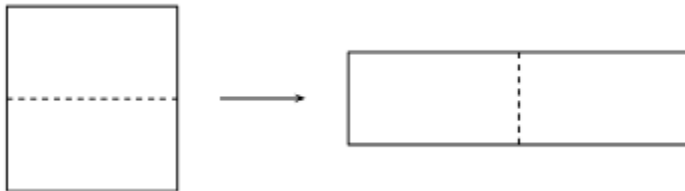
What is the sum of the missing digits?

- 0
- 1
- 2
- 3
- 10

4. What is the difference between the smallest 5-digit number and the largest 4-digit number?

- 1
- 10
- 1111
- 9000
- 9900

5. A square of perimeter 48 cm is cut into 2 pieces to make a rectangle (see the picture).



What is the perimeter of the rectangle?

- 24 cm
- 30 cm
- 48 cm
- 60 cm
- 72 cm

6. Katrin has 38 matches. She built a triangle and a square, using all the matches. Each side of the triangle consists of 6 matches. How many matches are in each side of the square?

- 4
- 5
- 6
- 7
- 8

7. A Ferris wheel has 32 passenger cabins. If you are sitting in cabin 14 which is currently at the top of the wheel, what is the number of the cabin at the bottom of the wheel?

- 26
- 27
- 28
- 30
- 32

8. The pearl necklace in the picture contains black pearls and white pearls.



Arno wants to have five of the black pearls. He can only take pearls from either end of the necklace, and so he has to take some of the white pearls also . What is the smallest number of white pearls Arno has to take?

- 2
- 3
- 4
- 5
- 6

9. Harry participated in a broom flight contest which consisted of five laps. The times when Harry passed the starting point are shown in the table. Which lap took the shortest time?

- the first
- the second
- the third
- the fourth
- the fifth

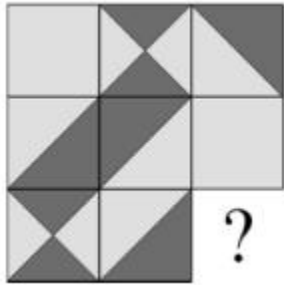
10. It takes Ben 30 minutes to cut a long log of wood into six pieces. How long does it take him to cut another log of wood into nine pieces?

- 40
- 44
- 45
- 48
- 54

11. **Part B: Each correct answer is worth 4 points**

Which tile must be added to the picture so that the light grey area is as large as the black area?





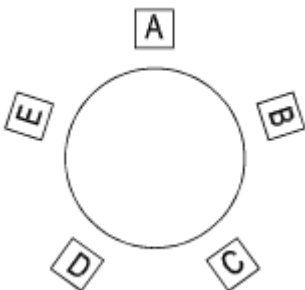
- (A)  (B)  (C)  (D)  (E) It is impossible.

- A
- B
- C
- D
- E

12. Henry and John started walking from the same point. Henry went 1 km north, 2 km west, 4 km south and finally 1 km west. John went 1 km east, 4 km south and 4 km west. Which of the following must be the final part of John's walk so that he could reach the same point as Henry?

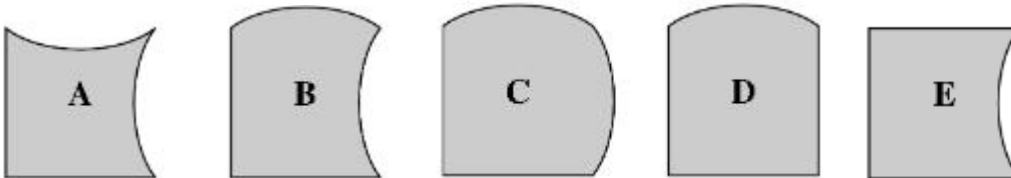
- He has already reached the same point
- 1 km north
- 1 km north-west
- More than 1 km north-west
- 1 km west

13. The kangaroos A, B, C, D and E were sitting in this order, clockwise, around a circular table. When the bell rang, each kangaroo but one exchanged its position with a neighbour. The order of the kangaroos, clockwise, became A, E, B, D, C. Which kangaroo did not move?



- A
- B
- C
- D
- E

14. A square can be formed using four of these five pieces. Which one will not be used?



- A
- B
- C
- D
- E

15. A positive integer has three digits. The product of the digits is 135. What is the sum of the digits?

- 14
- 15
- 16
- 17
- 18

16. In a restaurant, there are 16 tables, each with 3, 4 or 6 chairs. The tables with 3 or 4 chairs can accommodate 36 people. The restaurant can accommodate 72 people. How many tables are there with 3 chairs?

- 4
- 5
- 6
- 7
- 8

17. The points A , B , C , D , E and F lie on a straight line in that order. We know that  $AF = 35$ ,  $AC = 12$ ,  $BD = 11$ ,  $CE = 12$  and  $DF = 16$ . What is the distance BE?

- 13
- 14
- 15
- 16
- 17

18. Parisa sets her marbles in groups of equal size on the desk. After she arranged the marbles in groups of 3, she found that there were 2 marbles left. Then she arranged the marbles in groups of 5, and again there were 2 marbles left. At least how many more marbles does she need so that there won't be any left when she arranges them in groups of 3 and in groups of 5?

- 3
- 1
- 4
- 10
- 13

19. A plane takes off from Vienna at 11:00 am local time and arrives in Toronto at 1:00 pm local time. On average, it takes 8 hours for a plane of this type to fly this distance. What time is it in Toronto when it is 7:00 am in Vienna?

- 1:00 pm
- 1:00 am
- 9:00 am
- 5:00 am
- 3:00 pm

20. What is the greatest number  $N$ , which, when divided by 7, has a remainder that is equal to the quotient?

- 7
- 8
- 48
- 56
- 77

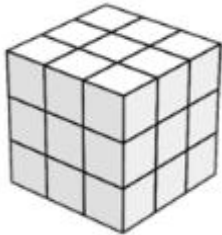
21. **Part C: Each correct answer is worth 5 points**

The king and his messengers are travelling from the castle to the summer palace at a speed of 5 km/h. Along the way, the king sends a messenger back to the castle; and one hour later, he sends back another messenger. If the messengers

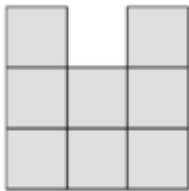
travel at a speed of 10 km/h, what is the time between their arrivals at the castle?

- 30 min
- 60 min
- 75 min
- 90 min
- 120 min

22. The  $3 \times 3 \times 3$  cube in the picture is made of 27 small cubes.



How many small cubes do you have to remove to see the following result when viewing from the right, from above, and from the front?



- 4
- 5
- 6
- 7
- 9

23. Andy made a playlist with 5 songs (A, B, C, D and E). Song A is 3 minutes long, song B is 2 minutes and 30 seconds, song C is 2 minutes, song D is 1 minute and 30 seconds, and song E is 4 minutes. The songs play in this order in a continuous loop. If Andy left the house when song C was just starting, what song was playing when he got back home 1 hour later?

- A
- B
- C
- D
- E

24. Dan entered the numbers from 1 to 9 in the cells of a  $3 \times 3$  table. He began by placing the numbers 1, 2, 3 and 4 as shown in the picture:

1		3
2		4

It so happened that for the number 5, the sum of the numbers in the adjacent cells (having a common side) was equal to 9. What is the sum of the numbers adjacent to the number 6?

- 14
- 15
- 17
- 28
- 29

25. Rabbit Vasya loves cabbage and carrots. In a day, he eats either 9 carrots, or 2 heads of cabbage, or 1 head of cabbage and 4 carrots. But some days he only eats grass. Over the last 10 days, Vasya ate a total of 30 carrots and 9 heads of cabbage. On how many of these 10 days did he eat only grass?

- 0
- 1
- 2
- 3
- 4

26. Trees grow on only one side of Park Avenue. There are 60 trees in total. Every second tree is a maple, and every third tree is either a linden or a maple. The remaining trees are birches. How many birches are there?

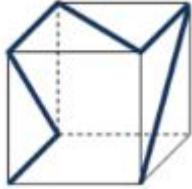
- 10
- 15
- 20
- 24
- 30

27. Granny has 10 grandchildren, all of different ages. Alice is the eldest. The sum of the ages of all grandchildren is 180. At least how old is Alice?

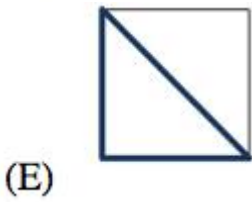
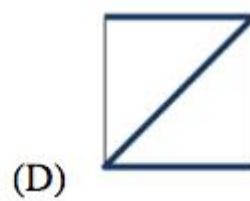
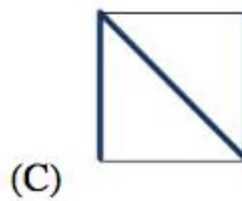
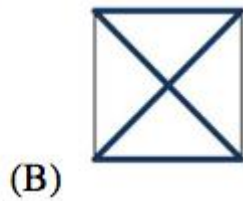
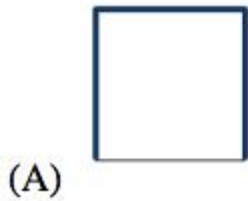
- 19
- 20

- 21
- 22
- 23

28. A thin colourful ribbon is stuck on a transparent plastic cube (see the picture).

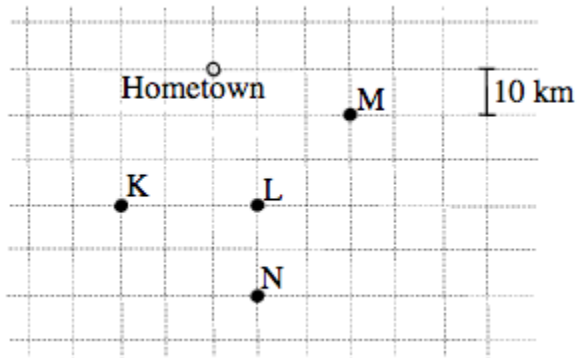


Which of the following pictures does not represent the cube as seen from any perspective?



- A
- B
- C
- D
- E

29. Bob is going to visit four cities. He will start from and end up in his home town. The figure shows a map of the regions with the cities. The roads are only along the grid lines.

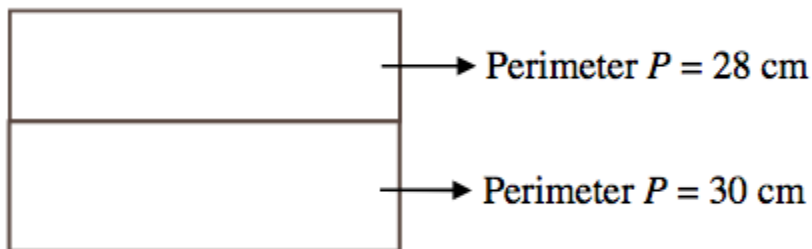


Bob wants to make the trip as short as possible. Which route should Bob follow?

(A) M,L,N,K (B) K,L,M,N (C) N,M,L,K (D) L,N,K,M (E) K,L,N,M

- M,L,N,K
- K,L,M,N
- N,M,L,K
- L,N,K,M
- K,L,N,M

30. A rectangle with a perimeter of 34 cm was divided into two smaller rectangles with perimeters 28 cm and 30 cm, as shown in the figure.



What is the area of the big rectangle?

- 88 cm<sup>2</sup>
- 120 cm<sup>2</sup>
- 187 cm<sup>2</sup>
- 60 cm<sup>2</sup>
- 49 cm<sup>2</sup>