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Pre-Ecolier

3 points

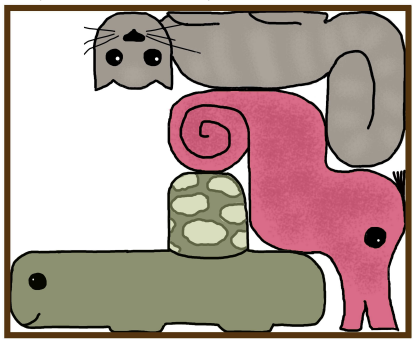
1 (Belarus). The picture on the right shows a ladybird. Which of the options below shows the same ladybird?

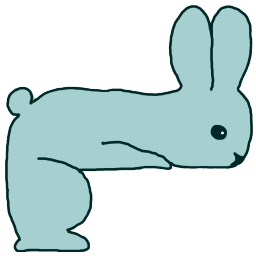


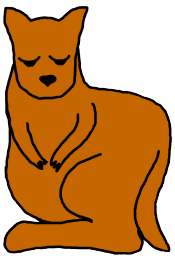
(**A**)  (**B**)  (**C**)  (**D**)  (**E**) 

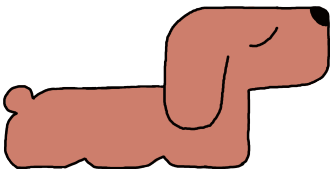
SOLUTION: The ladybug has 3 dots on its left wing and 2 on the other.

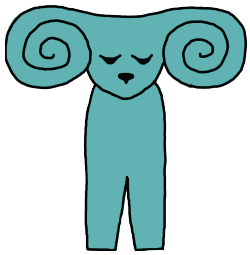
2 (Uzbekistan). Which piece completes the puzzle?

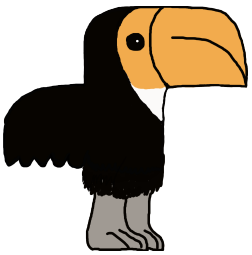


(**A**) 

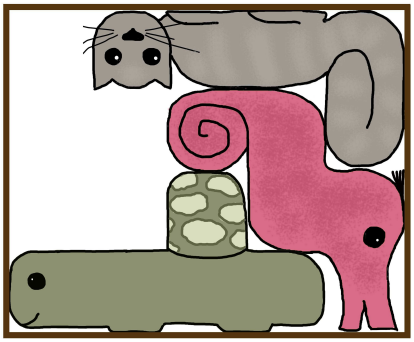
(**B**) 

(**C**) 

(**D**) 

(**E**) 

SOLUTION: The only piece that fits in the space is the kangaroo.



3 (Denmark). The dog runs through the maze shown.

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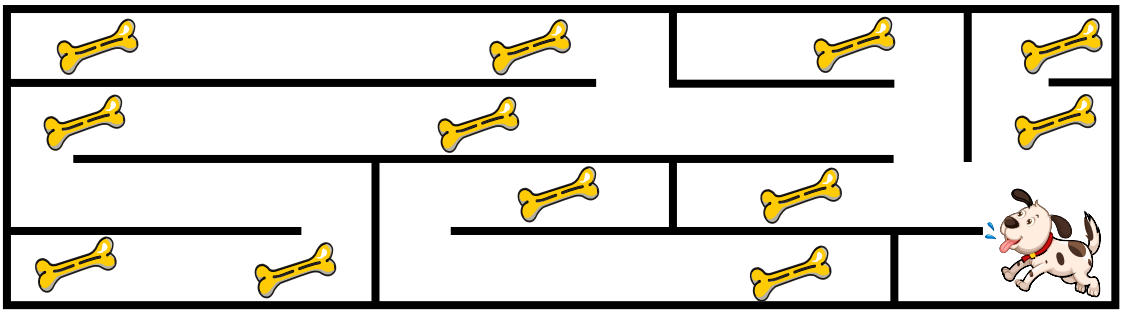


In total, how many bones can the dog reach?

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

SOLUTION: Two of the bones cannot be reached and so the dog can reach 10 in total.

4 (Russia). Anne's friends come to visit and take off their shoes. Their shoes are shown in the picture.

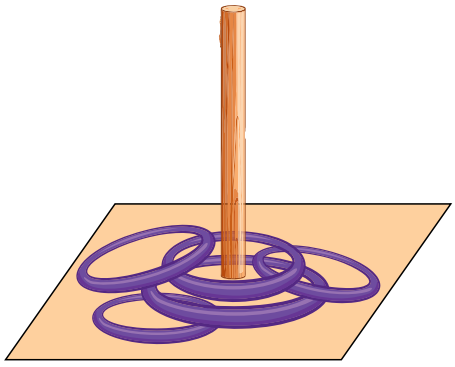


How many friends have come to visit?

(**A**) 6 (**B**) 7 (**C**) 8 (**D**) 12 (**E**) 14

SOLUTION: Simply count the total number of shoes: 14. Half of 14 is 7. So there are 7 pairs of shoes and 7 friends.

5 (China). In a ring toss game, players score 3 points for each ring that lands on the peg.



In total, how many points do the players score in the game shown?

(**A**) 3 (**B**) 6 (**C**) 9 (**D**) 12 (**E**) 15

SOLUTION: 2 rings have landed on the peg, so the total score is $2 \times 3 = 6$ points.

6 (Russia). Bernard starts with 6 tokens on the table, as shown in the picture.

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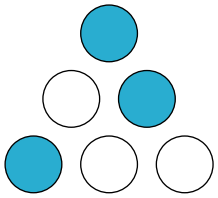
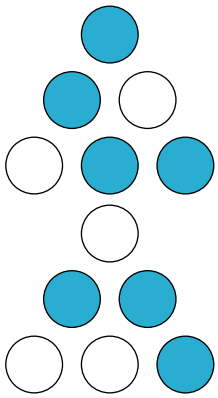
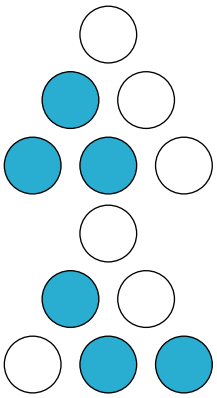
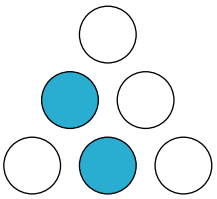


Each token is blue on one side and white on the other. What will Bernard see after he turns over every token once?

(**A**) 

(**B**) 

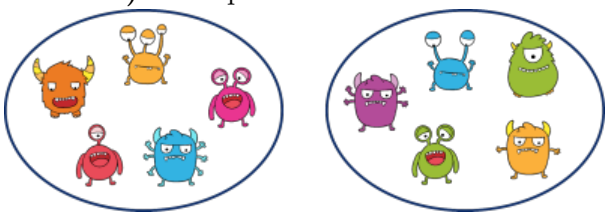
(**C**) 

(**D**)

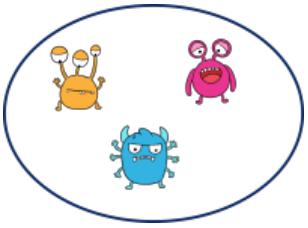
(**E**)

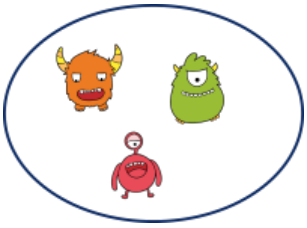
SOLUTION: Checking the options leads to the correct answer.

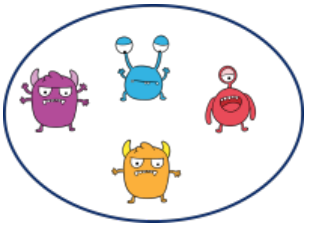
7 (Vietnam). The picture shows 2 different families of monsters.

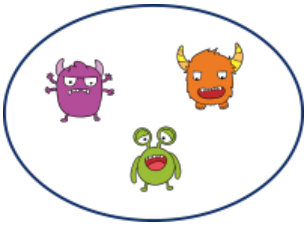


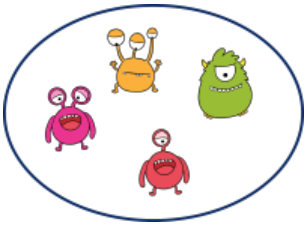
Which of these groups is made up of monsters from the same family?

(**A**) 

(**B**) 

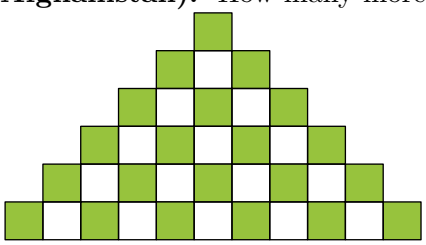
(**C**) 

(**D**) 

(**E**) 

SOLUTION: Groups B, C, D and E all have monsters from both families, so only group A is correct.

8 (Afghanistan). How many more green squares than white squares are there in the picture?



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

SOLUTION: Each row has one more green square than white squares. Since there are 6 rows, there are 6 more green squares in total.

4 points

9 (Russia). Abigail writes the first three letters of the alphabet on a window. She then draws a heart after the final letter.



What can be seen from the other side of the window?

(**A**) 

(**B**) 

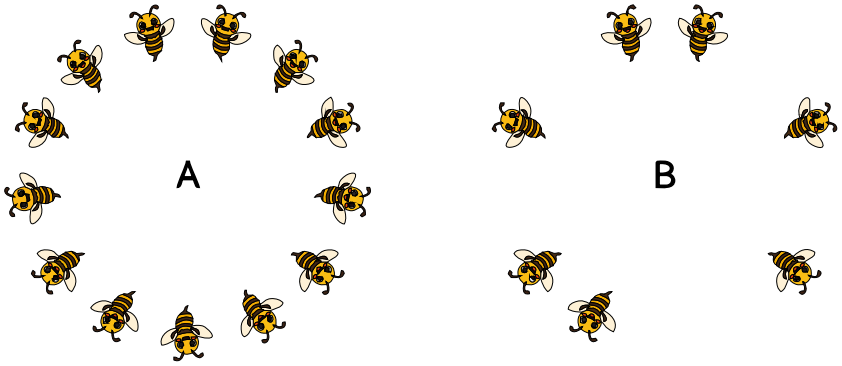
(**C**) 

(**D**) 

(**E**) 

SOLUTION: From the other side of the window, the letters and shape appear reflected about a vertical line through their centres. Also, the whole group appears reflected about a vertical line through the centre of the group. Checking the options leads to the correct answer.

10 (Ireland). Some bees are standing in two circles.

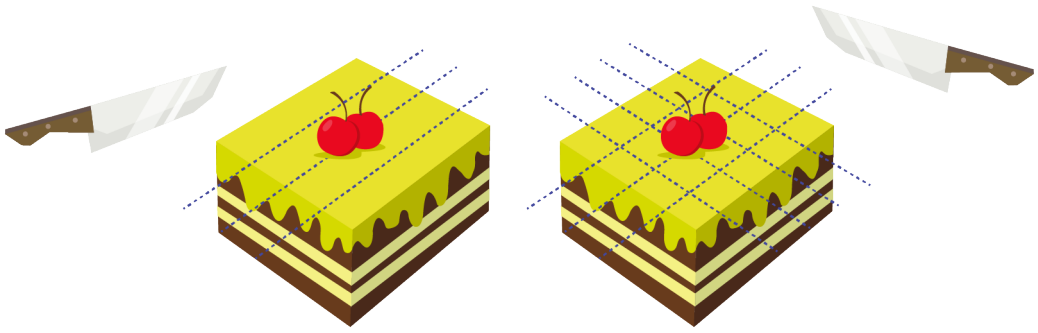


How many bees must move from circle A to circle B so that there are the same number of bees in each circle?

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

SOLUTION: There are 13 bees in circle A and 7 bees in circle B. The difference is 6, so 3 bees need to move from A to B. Then there will be $10 = 13 - 3$ bees in A and $10 = 7 + 3$ bees in B.

11 (Poland). Grandma divides a cake with 3 cuts. Then she turns the cake and makes 4 more cuts, as shown in the picture.



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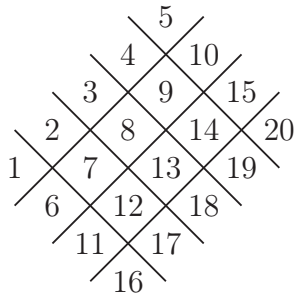
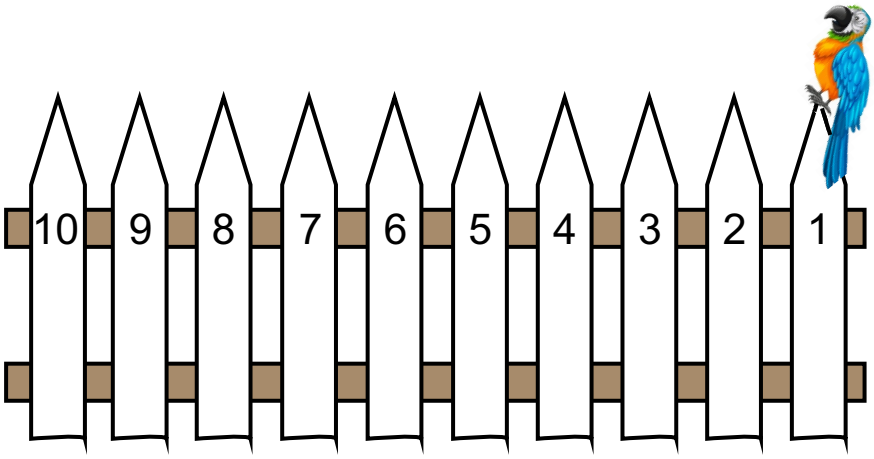
How many pieces of cake are there now?

(**A**) 14 (**B**) 16 (**C**) 18 (**D**) 20 (**E**) 21

SOLUTION: After cutting we can count the pieces.



12 (Slovakia). Pierre the parrot takes 2 seconds to jump from one post to the next.

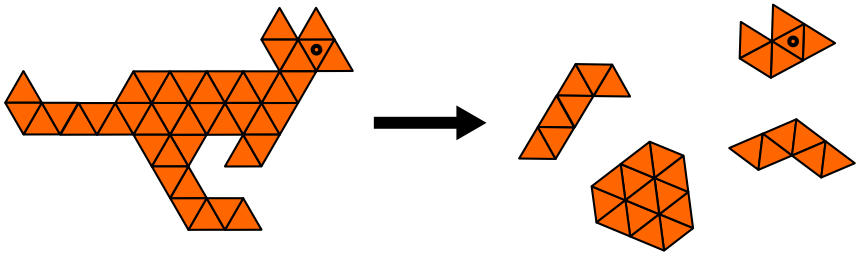


Pierre jumps from the first post to the tenth post, one post at a time. How many seconds will Pierre take to reach the tenth post?

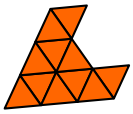
(**A**) 10 (**B**) 16 (**C**) 18 (**D**) 20 (**E**) 22

SOLUTION: The parrot needs to make 9 jumps. This will take 18 seconds.

13 (Finland). A kangaroo puzzle breaks into five pieces. Four of the pieces are shown on the right.



Which piece is missing?

(**A**)  (**B**)  (**C**)  (**D**)  (**E**) 

SOLUTION: Checking the options leads to the correct answer.

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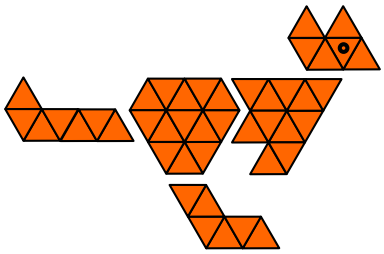
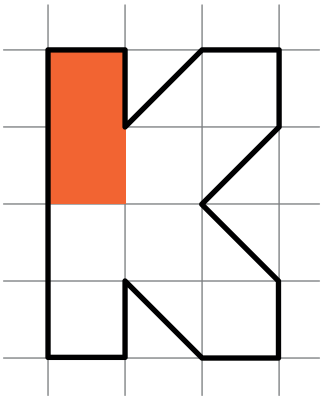


14 (Russia). Billy the beaver is painting the K in the picture shown.

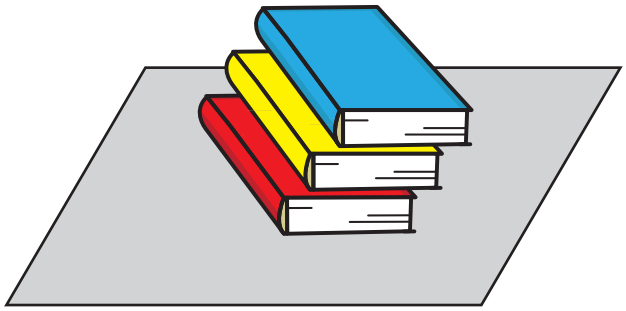


He has already used 1 tube of paint. How many more tubes of paint does he need to finish painting the K?

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

SOLUTION: Billy still needs to paint 6 full squares and 4 triangles, making a total of 8 squares. 1 tube of paint is needed for 2 squares and so 4 more tubes are needed to finish.

15 (Iran). Stephanie has 3 books: 1 blue, 1 yellow and 1 red.



The yellow book has 4 more pages than the red book.
The yellow book also has 7 more pages than the blue book.
How many pages fewer than the red book does the blue book have?

(**A**) 3 (**B**) 4 (**C**) 7 (**D**) 10 (**E**) 11

SOLUTION: The yellow book has 4 more pages than the red book. The yellow book also has 7 more pages than the blue book. So the blue book has $7 - 4 = 3$ pages fewer than the red one.

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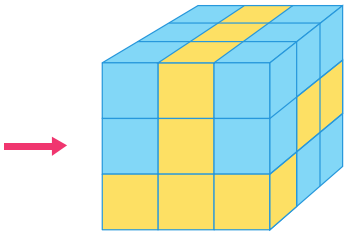
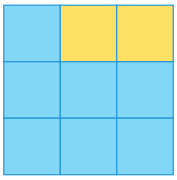
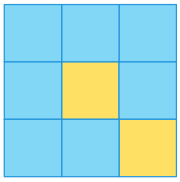
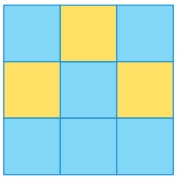
16 (United States). The big cube shown in the picture is made of 18 blue cubes and 9 yellow cubes.

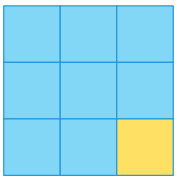


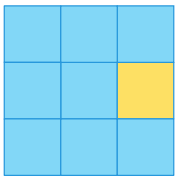
Daniel looks at the left face, as shown by the arrow. What does he see?

(**A**) 

(**B**) 

(**C**) 

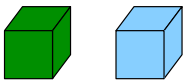
(**D**) 

(**E**) 

SOLUTION: All of the yellow cubes are visible in the picture. When Daniel looks from the side shown by the arrow, he can see only one yellow cube. That yellow cube is in the bottom right corner of the side view.

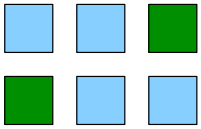
5 points

17 (Poland). Filip has built 6 towers using green blocks and blue blocks.



Each tower is made of 5 blocks. Blocks of the same colour do not touch.

From above, the towers look as shown in the picture.

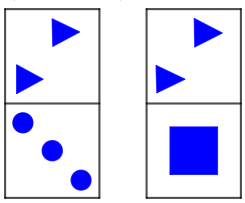


How many blue blocks has Filip used in total?

(**A**) 10 (**B**) 12 (**C**) 15 (**D**) 16 (**E**) 20

SOLUTION: There are two types of tower: one with 3 blue and 2 green blocks, and one with 2 blue and 3 green blocks. The colour of the block on top tells us which type the tower is. There are 4 towers with 3 blue blocks and 2 towers with 2 blue blocks, and so there are $4 \times 3 + 2 \times 2 = 16$.

18 (Poland). Which figure is it impossible to make using the 2 tiles shown?



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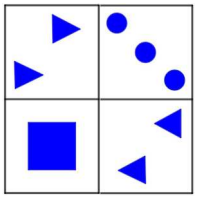
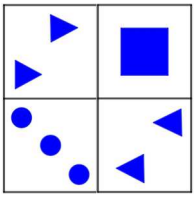
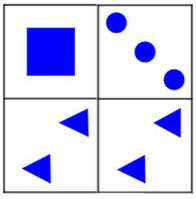
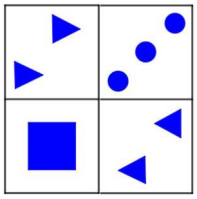
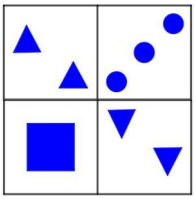
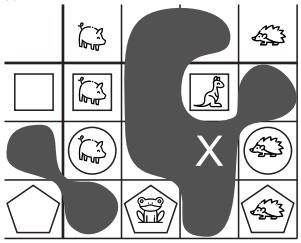
(A)  (B)  (C) 

(D)  (E) 

SOLUTION: Checking the options leads to the correct answer.

19 (Estonia). The table has been completed by combining the shape shown on the left of each row with the animal shown at the top of each column. Frank then spilled ink on some of the cells, as shown.



Which picture is hidden under the X?

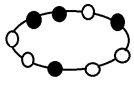
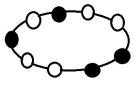
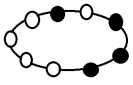
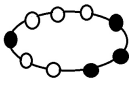
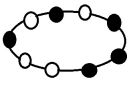
(A)  (B)  (C)  (D)  (E) 

SOLUTION: The figure in the cell marked X is made by combining a circle and a kangaroo.

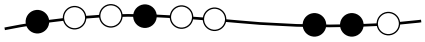
20 (Poland). Ania is making a bracelet by stringing beads on to a thread.

- First, she strings 2 white beads on the left side of the thread,
- then 1 black bead on the left side of the thread,
- then 2 black beads on the right side,
- then 2 white beads on the left side,
- then 1 white on the right and 1 black on the left.

Which picture shows Ania's bracelet when she finishes?

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

SOLUTION: Before joining the ends of the thread, the bracelet looks as shown.



Then checking the options leads to the correct answer.

21 (Tunisia). Ranim has three cards and two envelopes.

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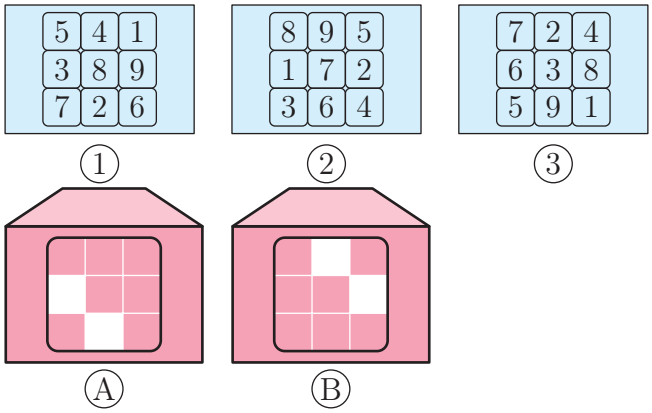


She slides a card into each envelope without rotating it. She can see two numbers through the windows of each envelope. The sum of the 4 visible numbers is 26.

Which card has she put in each envelope?

(**A**) Card 1 in envelope A; Card 3 in envelope B

(**B**) Card 2 in envelope A; Card 1 in envelope B

(**C**) Card 3 in envelope A; Card 1 in envelope B

(**D**) Card 3 in envelope A; Card 2 in envelope B

(**E**) Card 2 in envelope A; Card 3 in envelope B

SOLUTION: The table shows the sum of the visible digits for each combination.

	①	②	③
A	$3+2=5$	$1+6=7$	$6+9=15$
B	$4+9=13$	$9+2=11$	$2+8=10$

The only way to make a sum of 26 is $11+15$. So card 3 must go in envelope A and card 2 must go in envelope B.

22 (Poland). Arek, Darek, and Marek arrived at the gym at different times.

- Arek says: "I arrived first."
- Marek says: "I arrived before Arek."

Both boys are lying. In what order did the boys arrive at the gym?

(**A**) Arek then Marek then Darek

(**B**) Marek then Darek then Arek

(**C**) Darek then Marek then Arek

(**D**) Marek then Arek then Darek

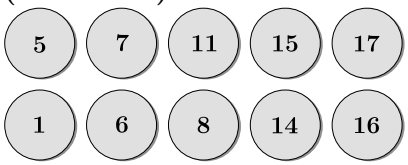
(**E**) Darek then Arek then Marek

SOLUTION: Arek lies, so he cannot be the first (he is second or third).

Marek also lies, so he arrived after Arek. Therefore Marek is third.

Finally Darek came first, Arek second and Marek third.

23 (Catalonia). Martina has arranged ten numbered tokens into two rows, as shown in the picture.



She wants to swap a token in the first row with one in the second row so that the numbers in each row then have the same total.

Which token must she take from the first row?

(**A**) 5 (**B**) 7 (**C**) 11 (**D**) 15 (**E**) 17

SOLUTION: Working column by column, the differences between the top and bottom numbers are $5-1=4$, $7-6=1$, $11-8=3$, $15-14=1$ and $17-16=1$.

So the sum along the top row is 10 greater than the sum along the bottom row (because $4+1+3+1+1$). So we must decrease the top row by 5 and increase the bottom row by 5 (because $10 \div 2 = 5$). The only possible way is to switch 11 and 6. Therefore, she must take 11 from the first row.

24 (Italy). In Istanbul, a cat has 7 kittens. One of the male kittens is called Albert, and one of the female kittens is called Stella.

Stella has twice as many brothers as Albert has.

How many sisters does Stella have?

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

SOLUTION: Albert has just 1 brother, so Stella must have 2.

So we have Stella and her 2 brothers.

That means there are $7-2-1=4$ sisters.

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