Math Kangaroo and Futoshiki Practice
UCLA Olga Radko Math Circle 05/16/2021
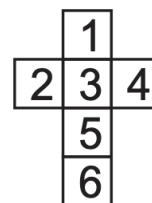
Question 1:

Luis has got 7 apples and 2 bananas. He gives 2 apples to his friend Jacob, who gives him bananas in return. Afterwards Luis has got the same amounts of apples as bananas. How many bananas did Luis get from Jacob? B

(A) 2　　　　(B) 3　　　　(C) 4　　　　(D) 5　　　　(E) 7

Question 2:

Julia folds the paper net pictured on the right, into a cube. Which number is on the face that is opposite to the face with the number 3? E


(A) 1　　　　(B) 2　　　　(C) 4　　　　(D) 5　　　　(E) 6

Question 3:

10 runners start in a running race. At the finish, there are 3 more runners behind Thomas than there are in front of him. In which position did Thomas finish? C

(A) 1　　　　(B) 3　　　　(C) 4　　　　(D) 6　　　　(E) 7

Question 4:

Peter rides his bike along a cycle path in a park. He starts at point S and rides in the direction of the arrow. At the first crossing he turns right, then at the next left, and then again to the right and then again to left. Which crossing does he not reach? D
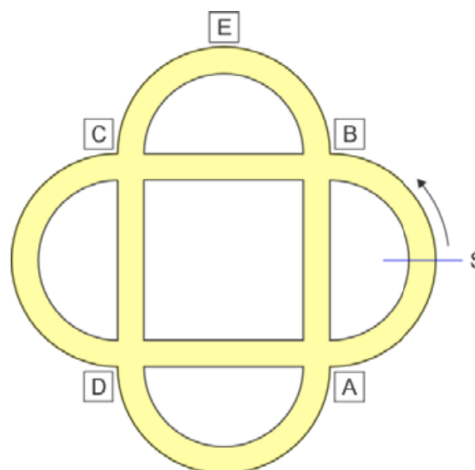

(A) A　　(B) B　　(C) C　　(D) D　　(E) E

Question 5:
Luca wants to cut the shape in figure 1 into equally sized small triangles (like those in figure 2). One of these triangles is already drawn on figure 1. How many of these triangles will he get? D

Figur 1

Figur 2
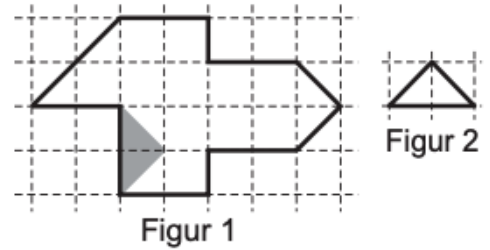
(A) 8   (B) 12   (C) 14   (D) 15   (E) 16
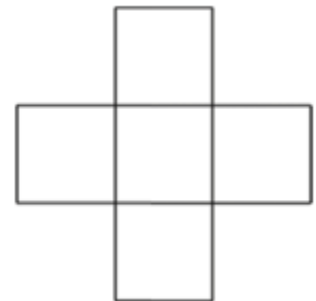
Question 6:
Some of the small squares on each of the square transparencies have been coloured black. If you slide the three transparencies on top of each other, without lifting them from the table, a new pattern can be seen. What is the maximum number of black squares which could be seen in the new pattern? D
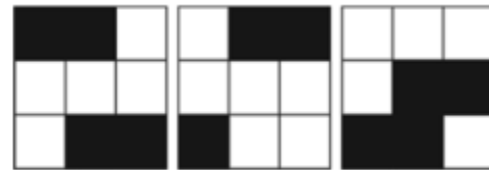
(A) 5   (B) 6   (C) 7   (D) 8   (E) 9

Question 7:
The numbers 1, 2, 3, 4 and 9 are written into the squares on the following figure. The sum of the three numbers in the horizontal row, should be the same as the sum of the three numbers in the vertical column. Which number is written in the middle? E

(A) 1   (B) 2   (C) 3   (D) 4   (E) 9

Question 8:
In this square there are 9 dots. The distance between the points is always the same. You can draw a square by joining 4 points. How many different sizes can such squares have? D
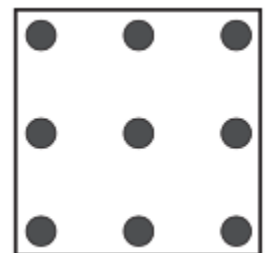
(A) 0   (B) 1   (C) 2   (D) 3   (E) 4

Question 9:
There are 10 balls, numbered 0 to 9 in a basket. John and George play a game. Each person is allowed to take three balls from the basket and calculate the total of the numbers on the balls. What is the biggest possible difference between the john and Georges totals? E

(A) 1   (B) 12   (C) 18   (D) 19   (E) 21

2
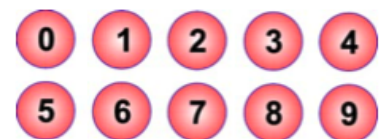
Question 10:
Anna, Berta, Charlie, David and Elisa baked biscuits at the weekend. Anna baked 24, Berta 25, Charlie 26, David 27 and Elisa 28 biscuits. By the end of the weekend one of the children had twice as many, one 3 times, one 4 times, one 5 times and one 6 times as many biscuits as on Saturday. Who baked the most biscuits on Saturday? C
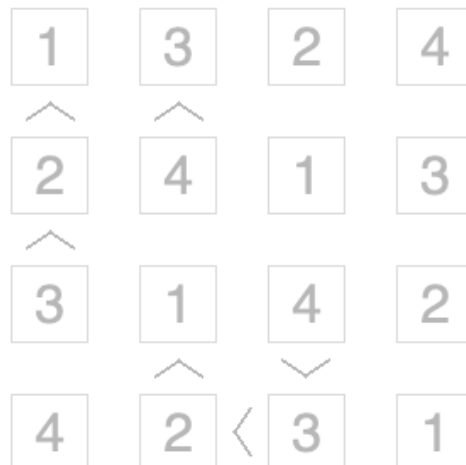
(A) Anna   (B) Berta   (C) Charlie   (D) David   (E) Elisa

Futoshiki Puzzles

Rules: In this 4 by 4 puzzle, we place the digits 1,2,3 and 4 inside each of the board's cells so that in each row and column, each digit appears exactly once and the inequality signs are satisfied.

Puzzle 1:

4	>	2		3		1
		v				
3		1		2	<	4
2		4		1	<	3
1		3		4		2

Puzzle 2:

3		2		1		4
v						
2	<	4		3		1
v		v				
1		3		4		2
						^
4		1	<	2		3

Puzzle 3:

1		3		2		4
^		^				
2		4		1		3
^						
3		1		4		2
		^		v		
4		2	<	3		1

3

Challenge Puzzles:

2 > 1	3	4	5
3	4 < 5	2	1
5	2	1	3	4
1	**3**	4	5	2
4	5	2	1	3

6	3 > 1	5	2	4
4	5	2	6	1 < 3
1	2	4	3 < 5	6
3 < 4	5	1	6	2
5	6	3	2 < 4	1
2	1	6	4 > 3	5

4