Kangourou Sans Frontières *Math Kangaroo in USA*

Math Kangaroo 2014 in USA

International Competition in Mathematics
Thursday, March 20, 2014

Levels 1 and 2

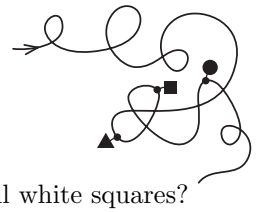
This test consists of 24 questions on 4 pages.
You have 75 minutes to complete it.
Calculators are not allowed!
Please enter your answers on the answer form provided.
Please put your name and ID number on the line below.

Problems 3 points each

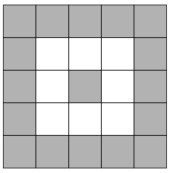
 # 1. The ladybug will sit on a flower that has five petals and three leaves. On which of the flowers below will the ladybug sit?

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

 # 2. If you start at the arrow and move along the line, in what order do you meet the shapes?



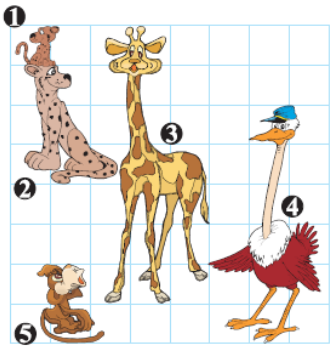
(A) ▲, ■, ● **(B)** ▲, ●, ■ **(C)** ●, ▲, ■ **(D)** ■, ▲, ● **(E)** ■, ●, ▲



 # 3. How many more small gray squares are there than small white squares?

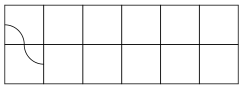
(A) 6 **(B)** 7 **(C)** 8 **(D)** 9 **(E)** 10

 # 4. Put the animals in order from the smallest to the largest. Give the number of the animal in the middle.



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

 # 5. Ann has twelve of these tiles  . She makes a design that is one continuous line. Ann starts at the left side of the grid, as shown in the picture. How does the line end on the right side of the grid?

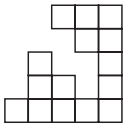


(A)  **(B)**  **(C)**  **(D)**  **(E)** 

 # 6. Which of the pictures below is the shadow of the girl?

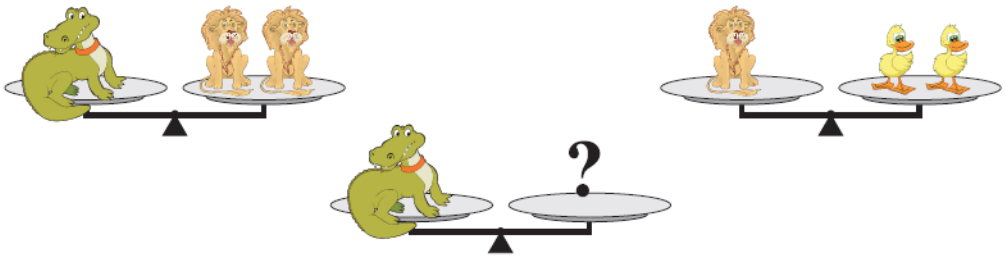
(**A**)  (**B**)  (**C**)  (**D**)  (**E**) 

 # 7. A square was made out of 25 small squares, but some of these small squares are now missing. How many small squares are missing?



(**A**) 6 (**B**) 7 (**C**) 8 (**D**) 10 (**E**) 12

 # 8. How many ducks balance the crocodile?

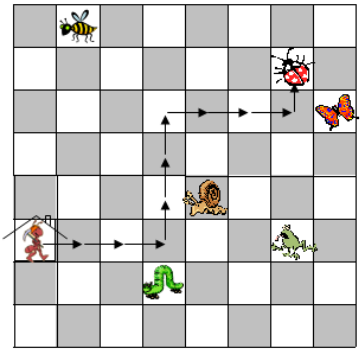


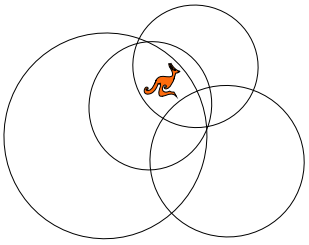
(**A**)  (**B**)  (**C**)  (**D**)  (**E**) 

Problems 4 points each

 # 9. When the ant  goes from home  following these arrows: → 3, ↑ 3, → 3, ↑ 1 on the board to the right, it comes to the ladybug  . Which animal will it come to if it goes from home following these arrows: → 2, ↓ 2, → 3, ↑ 3, → 2, ↑ 2?

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

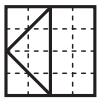


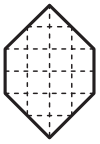
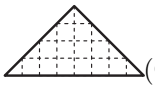
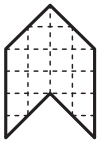
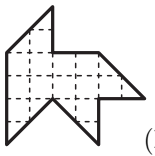
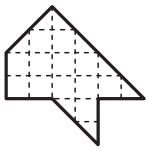


 # 10. The kangaroo is inside how many circles?

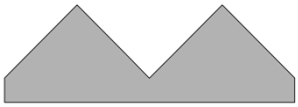
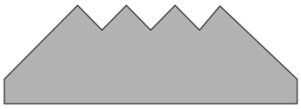
(**A**) 1 (**B**) 2 (**C**) 3 (**D**) 4 (**E**) 5

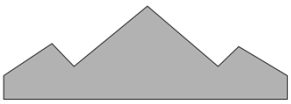
 # 11. A square was cut into 4 parts as shown in the picture to the right. Which of the following shapes cannot be made using only these 4 parts?



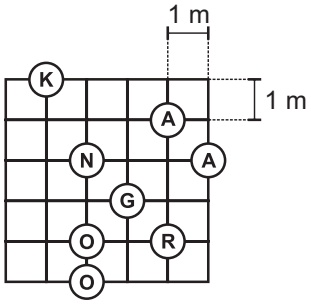
(**A**)  (**B**)  (**C**)  (**D**)  (**E**) 

 # 12. Which of the shapes shown below will fit this shape exactly to make a rectangle?

(**A**)  (**B**)  (**C**) 

(**D**)  (**E**) 

 # 13. Walking from K to O along the lines, pick up the letters KANGAROO in the correct order. What is the length of the shortest walk in meters (1 m = 1 meter)?

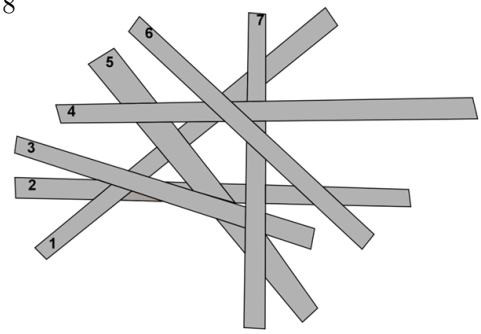


(**A**) 16 m (**B**) 17 m (**C**) 18 m (**D**) 19 m (**E**) 20 m

 # 14. How many numbers that are greater than 10 and less than or equal to 31 can be written with only the digits 1, 2 and 3 ? You can repeat digits.

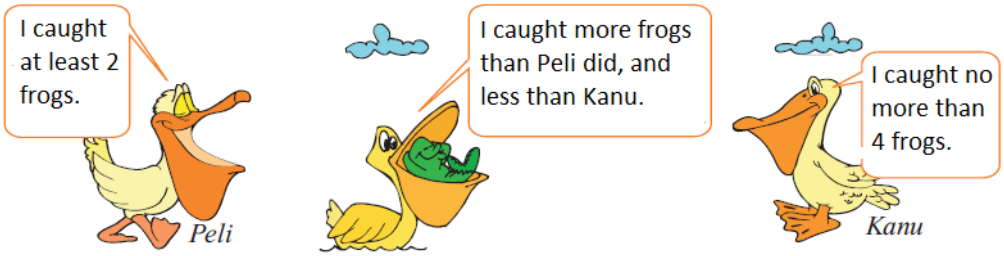
(**A**) 2 (**B**) 4 (**C**) 6 (**D**) 7 (**E**) 8

 # 15. Seven sticks lie on top of each other. Stick 2 is at the bottom. Stick 6 is at the top. Which stick is in the middle?



(**A**) 1 (**B**) 3 (**C**) 4 (**D**) 5 (**E**) 7

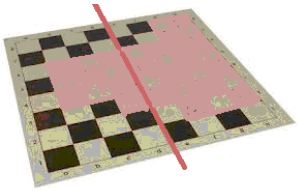
 # 16. How many frogs did the three pelicans catch altogether?



(**A**) 1 (**B**) 2 (**C**) 4 (**D**) 9 (**E**) 12

Problems 5 points each

 # 17. The chess board is damaged. How many black squares are missing on the right side of the line?

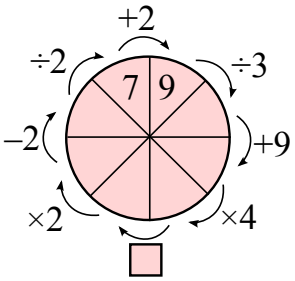


(**A**) 11 (**B**) 12 (**C**) 13 (**D**) 14 (**E**) 15

 # 18. Peter Rabbit eats cabbages and carrots. Each day he eats either 10 carrots or 2 cabbages. Last week Peter ate 6 cabbages. How many carrots did he eat last week?

(**A**) 20 (**B**) 30 (**C**) 34 (**D**) 40 (**E**) 50

 # 19. What should you put in the square on the bottom to get a correct diagram?

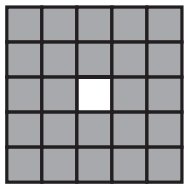


(**A**) -38 (**B**) $\div 8$ (**C**) -45 (**D**) $\times 6$ (**E**) $\div 6$

 # 20. Put the digits 2, 3, 4 and 5 in the squares and calculate the sum to get the largest possible value. What is that value? □□ + □□

(**A**) 68 (**B**) 77 (**C**) 86 (**D**) 95 (**E**) 97

 # 21. The central cell of the square was removed. We cut the rest of the square into identical pieces. Which type of piece is it not possible to get?

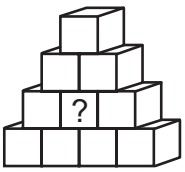


(**A**)  (**B**)  (**C**)  (**D**)  (**E**) 

 # 22. To get the product of $2 \times 3 \times 15$, Bill has to press the keys of his calculator seven times: 2 X 3 X 1 5 =. Bill wants to multiply all the numbers from 3 to 21 using his calculator. At least how many times will he press the keys of his calculator?

(**A**) 19 (**B**) 31 (**C**) 37 (**D**) 50 (**E**) 60

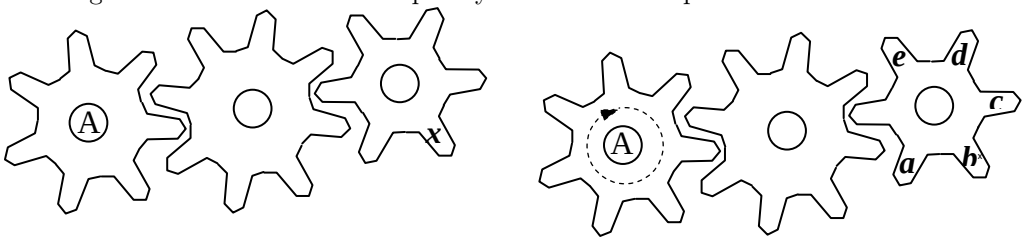
 # 23. Fred has 4 red cubes, 3 blue cubes, 2 green cubes and 1 yellow cube. He builds a tower (see the picture) in such a way that no two adjacent cubes have the same color. What color is the cube with the question mark?



(**A**) red (**B**) blue (**C**) green (**D**) yellow

(**E**) It is impossible to determine.

 # 24. Cogwheel A turns around completely once. At which place is x now?



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