Kangourou Sans Frontières

Math Kangaroo USA 2025

International Competition in Mathematics
Thursday, March 20, 2025

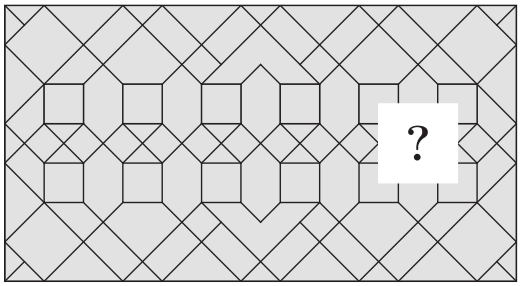
Math Kangaroo USA

Grades 5 and 6

You have 75 minutes to complete the test. ⋆ Calculators are not allowed. ⋆ Mark your answers on the answer sheet.

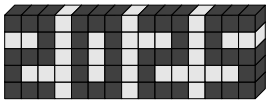
Problems 3 points each

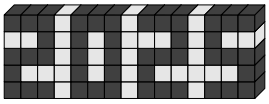
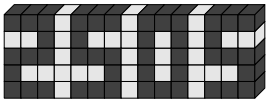
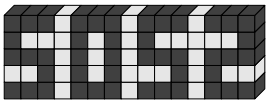
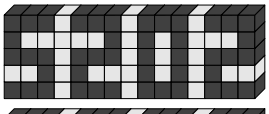
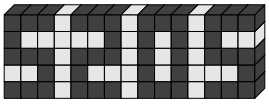
1. Which of the pieces shown would complete the pattern?



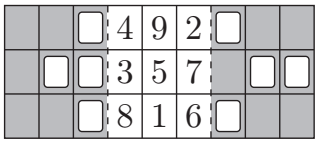
(**A**) 
(**B**) 
(**C**) 
(**D**) 
(**E**) 

2. Anna built a wall that displays the year 2025. Bella stands on the other side of the wall. What does Bella see?



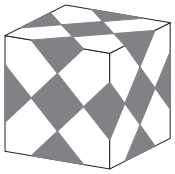
(**A**) 
(**B**) 
(**C**) 
(**D**) 
(**E**) 

3. Mike has a flyer with numbers and holes in the flaps on both sides, as shown in the picture. He folds the right flap along the dotted line and sees the numbers 2, 3, 5, and 6 through the holes. Then he also folds the left flap along the other dotted line. What is the sum of the numbers he sees now?



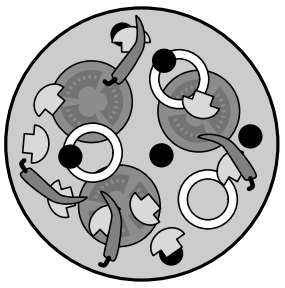
(**A**) 10 (**B**) 12 (**C**) 14 (**D**) 9 (**E**) 8

4. A cube is decorated by gluing identical gray squares on it. All the faces of the cube look the same. How many gray squares are there in total?



(**A**) 30 (**B**) 18 (**C**) 16
(**D**) 15 (**E**) 14

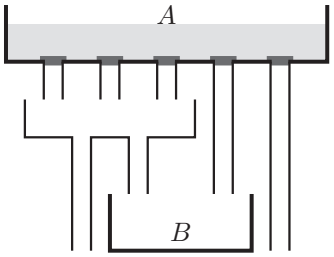
5. Max put slices of tomato, black olives, chilies, mushrooms, and onion rings on top of a pizza, but not necessarily in that order. He only put one ingredient at a time. His finished pizza is shown in the picture. Which was the third topping he put on the pizza?



(**A**) tomato slices 
(**B**) black olives 
(**C**) chilies 
(**D**) mushrooms 
(**E**) onion rings 

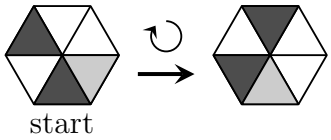
© Math Kangaroo USA, NFP, Inc.

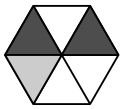
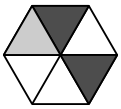
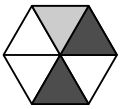
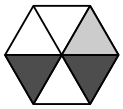
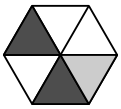
6. Container A holds 10 liters of water. All five plugs at the bottom of container A are taken out at the same time and the water flows out. What volume of water flows into container B?



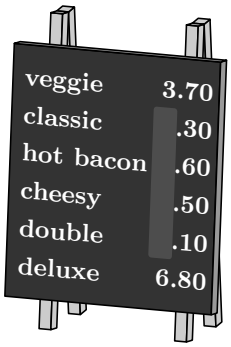
(**A**) 3 liters (**B**) 4 liters (**C**) 5 liters
(**D**) 6 liters (**E**) 8 liters

7. Thea rotates a piece of paper divided into six equal parts. When the paper is rotated, it is turned clockwise by one part. The original sheet of paper and the result of one rotation are shown in the diagram. What does the sheet of paper look like after a total of eight rotations?



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

8. The menu of my favorite burger restaurant is written on a board. However, the rain washed away some of the numbers. The burgers are in order by price. Which of the following is the price of one of my burgers?



(**A**) 4.10 (**B**) 5.50 (**C**) 5.60
(**D**) 6.30 (**E**) 6.60

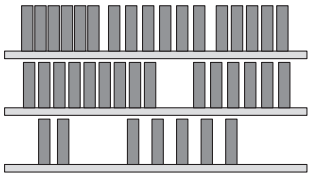
9. Six children took part in a race.

- Aria finished in the third place.
- Biel finished sixth, just behind Ernest.
- Fatima finished between Aria and Ernest.
- Diana overtook Charles right before the finish line.

Who won the race?

(**A**) Aria (**B**) Charles (**C**) Diana
(**D**) Ernest (**E**) Fatima

10. A bookshelf with three shelves has 17 books on the top shelf, 15 books on the middle shelf, and 7 books on the bottom shelf. Monika wants each shelf to have the same number of books. She also wants to move as few books as possible. How many books should she move from the middle shelf to the bottom shelf?



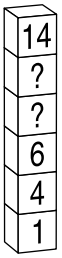
(**A**) 1 (**B**) 2 (**C**) 3 (**D**) 4 (**E**) 5

Problems 4 points each

11. Three turtles participate in a 10-kilometer race. Each of them moves at a constant speed. When the first turtle finishes, the second turtle has covered $\frac{1}{4}$ of the distance, and the third turtle has covered $\frac{1}{5}$ of the distance. How far from the finish line will the third turtle be when the second turtle finishes?

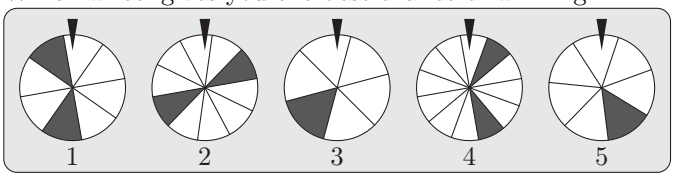
(**A**) 1 km (**B**) 2 km (**C**) 3 km (**D**) 4 km (**E**) 5 km

12. Vera built a tower of blocks. She wants to replace the two blocks with the question marks with two blocks with numbers. She wants the number on each block in her tower to be at least 2 more than the number on the block below it. In how many ways can Vera do this?



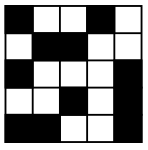
(**A**) 3 (**B**) 4 (**C**) 5 (**D**) 6 (**E**) 7

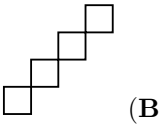
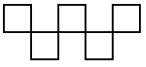
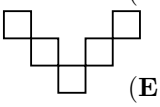
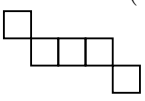
13. The picture shows five wheels of fortune. Each wheel is divided into a different number of identical parts. You will win a prize if you spin the wheel and it stops with the triangle above the wheel pointing to a part that is shaded. Which wheel gives you the best chance of winning?



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

14. Which shape, or any rotation of the shape, cannot be placed onto the white parts of the large square?



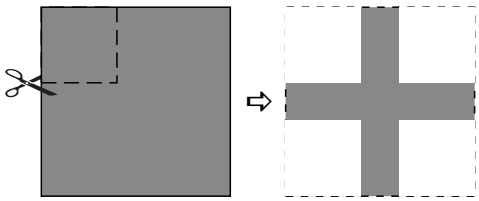
(**A**) 
(**B**) 
(**C**) 
(**D**) 
(**E**) 

15. My school's swimming team is practicing for a relay competition. Five swimmers swam the same distance, one after the other. The pictures below show the times on their coach's stopwatch when each swimmer finished their leg. The first swimmer needed 2 minutes and 8 seconds. Which of the swimmers needed the least time?



(**A**) the first (**B**) the second (**C**) the third
(**D**) the fourth (**E**) the fifth

16. Jessica cuts four identical squares from the corners of a square sheet of paper, as shown. The total area she cut off is 16 cm^2 and the area of the cross that remains is 9 cm^2. What is the perimeter of the cross in cm?



(**A**) 9 (**B**) 16 (**C**) 20 (**D**) 25 (**E**) 32

17. Each of the cards shown below has two 3-digit numbers written on them, but some of the digits cannot be seen as they are covered in ink. On one of the cards, the sum of the digits of both numbers is the same. On which card are those two numbers?

(**A**) 

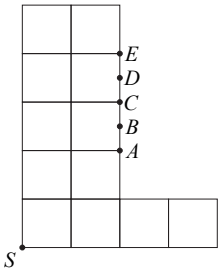
(**B**) 

(**C**) 

(**D**) 

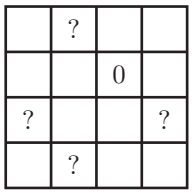
(**E**) 

18. The shape in the diagram is made up of identical squares. Point B is halfway between points A and C. Also, point D is halfway between points C and E. Maria wants to divide the shape into two parts of equal area. Which of the points A, B, C, D, or E should she connect with a straight line to point S to do this?



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

19. Henry wants to write a 0 or a 1 in each cell of the diagram so that the sum of the numbers in each row, column, and diagonal is 3. He has already written a 0 in one of the cells. When he finishes, what will the sum of the numbers in the cells with the question marks be?



(**A**) 1 (**B**) 2 (**C**) 3 (**D**) 4
(**E**) It cannot be calculated.

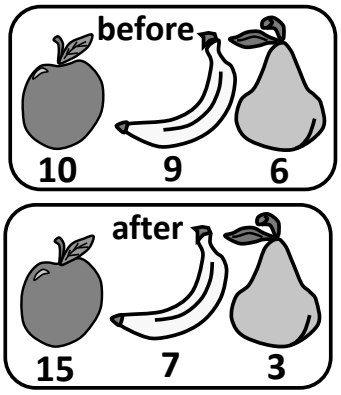
20. Mary and Paul each wrote down three 3-digit numbers using the digits 1 to 9 exactly once. (The picture shows an example of how three 3-digit numbers can be written using the digits 1 to 9 exactly once.) Then Mary and Paul ordered their numbers as smallest, middle, and largest. Mary wrote down the largest possible value the middle number could have. Paul wrote down the smallest possible value the middle number could have. What is the difference between their two middle numbers?



(**A**) 642 (**B**) 684 (**C**) 864 (**D**) 888
(**E**) None of the above.

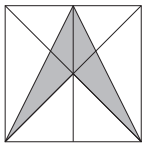
Problems 5 points each

21. A witch had 10 apples, 9 bananas, and 6 pears. One day she performed some magic and turned each of her pieces of fruit into one of the other two types. For example, she changed each apple into either a banana or a pear. She now has 15 apples, 7 bananas, and 3 pears. How many of the apples did she change into bananas?



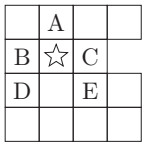
(**A**) 3 (**B**) 4 (**C**) 5 (**D**) 6 (**E**) 7

22. The side-length of the square shown in the diagram is 10 cm. The line down in the middle of the square divides it into two equal rectangles. What is the area of the shaded region?



(**A**) 12.5 cm^2 (**B**) 25 cm^2 (**C**) 30 cm^2
(**D**) 40 cm^2 (**E**) 50 cm^2

23. Joanna divides the figure shown into five equally shaped parts, each consisting of three squares. The square containing which letter is in the same part as the square marked with the star?

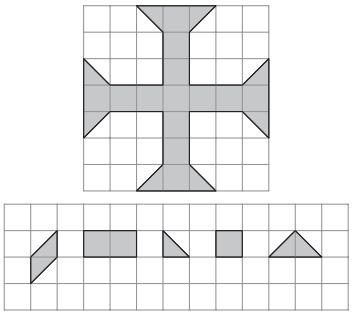


(**A**) A (**B**) B (**C**) C (**D**) D (**E**) E

24. Felix never tells the truth on Tuesdays, Thursdays, and Saturdays. He always tells the truth on the other four days. One day Mateo had the following conversation with Felix:
Mateo: "What day is it today?"
Felix: "Saturday."
Mateo: "What day will it be tomorrow?"
Felix: "Wednesday."
On which day did this conversation take place?

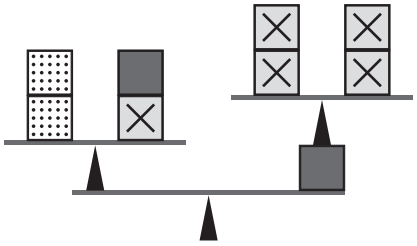
(**A**) Monday (**B**) Tuesday (**C**) Wednesday
(**D**) Thursday (**E**) Friday

25. Julio wants to construct the cross shape shown in the picture using pieces shaped like the ones below the cross. He has many copies of each piece. The pieces can be rotated if needed but they cannot overlap. What is the smallest number of pieces Julio could use to construct the shape?



(**A**) 11 (**B**) 12 (**C**) 13 (**D**) 15 (**E**) 17

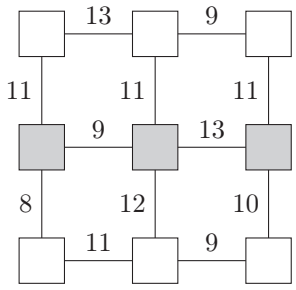
26. Some blocks are balanced on top of each other as shown. Blocks that are shaded in the same way have the same weight.



Ville wants to order the three different types of square blocks from heaviest to lightest. What order should Ville obtain?

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

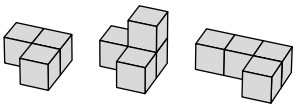
27. Patricia wants to write the numbers from 1 to 9 into the squares in the diagram, with one number in each square. She wants the sum of the numbers in any two adjacent squares to be equal to the number shown on the line joining these squares.

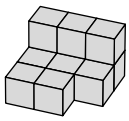
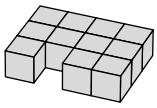
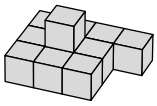
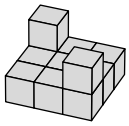
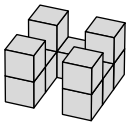


What is the sum of the numbers she writes in the shaded row?

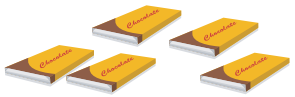
(**A**) 16 (**B**) 17 (**C**) 18 (**D**) 20 (**E**) 21

28. Tino combines the three building blocks shown on the right. Which of the following constructions can he make?



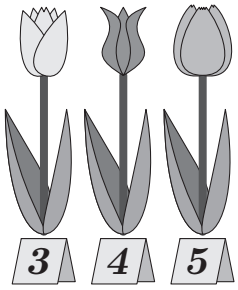
(**A**)  (**B**)  (**C**) 
(**D**)  (**E**) 

29. Sara had three times as many chocolate bars as Sanaz. Sara then gave a quarter of her bars to Sanaz. Sara now has six more bars than Sanaz. How many more bars than Sanaz did Sara have originally?



(**A**) 36 (**B**) 30 (**C**) 27 (**D**) 24 (**E**) 20

30. Zeta wants to buy some flowers. The prices of the three flowers she can buy are shown in the picture.



How many different bouquets with a total cost of exactly 23 can she buy?

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