

THE UNIVERSITY OF THE WEST INDIES, MONA CAMPUS
2015 JUNIOR MATHEMATICS OLYMPIAD

TEST FOR GRADES 4, 5, AND 6

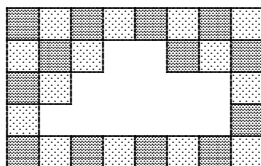
- 1) At a school party, every child received a bag with 10 sweets in it. Al, Barb, and Carl each ate one of their sweets and gave one to their teacher. How many sweets did the three of them have left all together?

a) 8 b) 10 c) 24 d) 27 e) 30

- 2) Shanique has a large box with three medium-sized boxes in it, and each medium-sized box has three small boxes in it. How many boxes does Shanique have in all?

a) 13 b) 10 c) 12 d) 9 e) 15

- 3) Mr. Brown is putting new tiles over his old floor. Some new tiles are black and some are grey, and they follow the pattern shown below. How many more grey tiles will Mr. Brown need for his floor?



a) 13 b) 8 c) 7 d) 6 e) 5

- 4) After the trainer's first whistle, the monkeys at the circus formed 4 rows. There were 4 monkeys in each row. After the second whistle, they rearranged themselves into 8 equal rows. How many monkeys were in each new row?

a) 1 b) 2 c) 3 d) 4 e) 5

- 5) Adam, Matt, Paul, and Tom were comparing their stamp collections. They found that Matt had more stamps than Paul, and Tom had fewer than Adam. They also found that Tom did not have the smallest number of stamps. Which of the boys had the least number of stamps?

a) Adam b) Matt c) Paul d) Tom
e) Not enough information is given.

- 6) In the fourth equation below, the answer is covered by a grey card. Which number is hidden by the card?

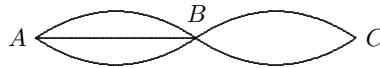
$$\bigcirc + \triangle = 3, \quad \triangle + \triangle = 4, \quad \triangle + \square = 5, \quad \bigcirc + \square = \blacksquare$$

a) 2 b) 6 c) 3 d) 5 e) 4

7) Eva lives with her mother, father, brother, one dog, two cats, two parakeets, and four fish. How many legs do they have altogether?

- a) 24 b) 22 c) 28 d) 40 e) 32

8) How many different ways are there from city *A* to city *C*?



- a) 2 b) 3 c) 5 d) 6 e) 9

9) There were 9 pieces of paper. Some of them were cut into 3 pieces. As a result, there are now 15 pieces of paper. How many pieces of paper were cut?

- a) 2 b) 3 c) 4 d) 5 e) 6

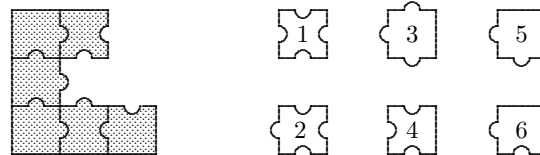
10) A certain movie is 90 minutes long. It started at 5:10 pm. During the movie, there were two commercial breaks, one lasting 8 minutes and one lasting 5 minutes. At what time did the movie finish?

- a) 6:47 pm b) 6:27 pm c) 6:13 pm d) 7:13 pm e) 6:53 pm

11) Nicholas noticed that, not including himself, there were twice as many girls as boys in his class. Which of the numbers below could be the number of students in Nicholas's class?

- a) 20 b) 24 c) 30 d) 29 e) 25

12) Which three pieces are needed to complete the puzzle?



- a) 1, 3, 4 b) 1, 3, 6 c) 2, 3, 5 d) 2, 3, 6 e) 2, 5, 6

13) What is the value of $2014 - 1014 + 114 - 14$?

- a) 1010 b) 1014 c) 1040 d) 1100 e) 1114

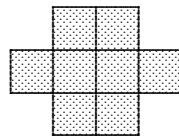
14) In a country far away, the value of 3 pesos is 12 centavos more than the value of 1 peso. How many centavos is 1 peso worth?

- a) 4 b) 6 c) 8 d) 10 e) 12

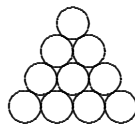
- 15) In a magic square, the sum of the numbers in any row, column, or diagonal is the same. The square below is a magic square. Two of the numbers were taken out and three were covered by the letters A , B , and C . What is the value of $A + B + C$?

16	3	A
C	10	
B		4

- a) 25 b) 41 c) 14 d) 30
 e) Impossible to tell
- 16) In a certain trunk there are 5 chests, in each chest there are 3 boxes, and in each box there are 10 gold coins. The trunk, the chests, and the boxes are all locked. What is the fewest number of locks that need to be opened in order to take out 50 gold coins?
- a) 5 b) 6 c) 7 d) 8 e) 9
- 17) The figure below is made of eight identical squares and has a perimeter of 42 cm. What is the area, in cm^2 , of the figure?



- a) 8 b) 9 c) 24 d) 72 e) 128
- 18) Ala has \$240 and Barb has \$660. Sophie has the same number of dollars more than Ala as she has less than Barb. How many dollars does Sophie have?
- a) 330 b) 420 c) 350 d) 480 e) 450
- 19) Gregorio arranged the digits 1, 2, 3, 4, 5 and 6 into two numbers with three digits each. He used each digit once and none of them twice. Then he found the sum of his numbers. What is the largest sum he could have gotten?
- a) 1173 b) 999 c) 1083 d) 975 e) 1221
- 20) Ten coins were placed in the triangular shape shown below. What is the smallest number of coins that need to be removed so that no equilateral triangle can be formed from the remaining centres? (An equilateral triangle has all sides equal and all angles equal.)



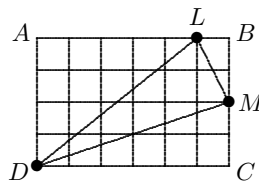
- a) 3 b) 4 c) 5 d) 6 e) 7

- 21) In a picture of a man with a walking stick, his stick measures 2 cm long. In reality, it is 1 m long. In the same picture, a fence measures 4.5 cm in height. In reality, how tall is the fence?
- a) 225 cm b) 450 cm c) 45 cm d) 22.5 cm e) 4.5 cm

- 22) In a Sudoku puzzle, each row and column contains the numbers 1, 2, 3, and 4 once. Miss James made the special Sudoku puzzle below for her students. After they simplify each expression, they should complete the puzzle in the usual way. Which number goes in the shaded square?

1×1		1×3	
2×2	$6 - 3$		$6 - 5$
$4 - 1$	$1 + 3$	$8 - 7$	
$9 - 7$	$2 - 1$		

- a) 1 b) 2 c) 3 d) 4 e) 5
- 23) Michael started with a number, multiplied it by itself, added 1, multiplied the result by 10, added 3, multiplied the result by 4, and obtained 2012. Which number did Michael start with?
- a) 11 b) 9 c) 8 d) 7 e) 5
- 24) In the figure below, rectangle $ABCD$ is made out of 24 small squares with the length of each side equal to 1. What is the area of triangle DLM ?



- a) 5 b) 6 c) 7 d) 8 e) None of these
- 25) A rectangular sheet of paper measures 192 mm by 84 mm. Suppose the sheet is cut into two pieces, a square and a rectangle. Then the rectangle is cut into two pieces, another square and another rectangle. Then this process continues until only squares remain. What is the length of a side of the smallest square obtained in this way?
- a) 1 mm b) 4 mm c) 6 mm d) 10 mm e) 12 mm