

The University of the West Indies
The 2019 Junior Mathematical Olympiad

FIRST ROUND EXAMINATION, GRADES 5 AND 6
THURSDAY, FEBRUARY 21, 2019

This examination consists of fifteen multiple-choice questions. For each one, decide whether (a), (b), (c), (d), or (e) is the best response. Then fill in the circle for that letter on the answer sheet provided. Each question is worth 5 marks.

1) What is the value of $\frac{2}{1 - \frac{2}{3}}$?

- (a) 3 (b) $\frac{4}{3}$ (c) $\frac{2}{3}$ (d) 2 (e) 6

2) One of the digits in the number .12345 is changed to a 9 to give a new number. Which digit should be changed to give the largest possible number?

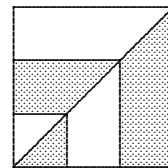
- (a) 1 (b) 2 (c) 3 (d) 4 (e) 5

3) Which of the following is **not** equal to $\frac{5}{4}$?

- (a) $\frac{10}{8}$ (b) $1\frac{1}{4}$ (c) $1\frac{3}{12}$ (d) $1\frac{1}{5}$ (e) $1\frac{10}{40}$

4) What fraction of the square is shaded?

- (a) $\frac{1}{3}$ (b) $\frac{2}{5}$ (c) $\frac{5}{12}$ (d) $\frac{3}{7}$ (e) $\frac{1}{2}$



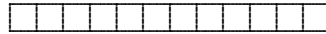
5) How many even numbers are there between 3^2 and 3^3 ?

- (a) 9 (b) 4 (c) 6 (d) 10 (e) 17

6) Each day, Maria must work 8 hours. This does not include the 45 minutes she takes for lunch. If she begins working at 7:25 am and takes her lunch break at noon, when will her working day end?

- (a) 3:40 pm (b) 3:55 pm (c) 4:10 pm (d) 4:25 pm (e) 4:40 pm

- 7) If $\frac{1}{2}$ of $\frac{2}{3}$ of the twelve small squares below are removed, how many will remain?



- (a) 2 (b) 3 (c) 4 (d) 8 (e) 9
- 8) The number N is between 9 and 17. Which of the numbers below could be the average of 6, 10, and N ?
- (a) 8 (b) 10 (c) 12 (d) 14 (e) 16
- 9) A rectangular pool is 6 m wide, 12 m long, and 4 m deep. If the pool is half full of water, what is the volume of the water in the pool?
- (a) 100 m^3 (b) 288 m^3 (c) 36 m^3 (d) 22 m^3 (e) 144 m^3
- 10) Six weights, weighing 1 kg, 2 kg, 3 kg, 4 kg, 5 kg, and 6 kg, were placed in three boxes. There were two weights in each box. Together, the weights in the first box weighed 9 kg and the ones in the second box weighed 8 kg. Which weights were in the third box?
- (a) 5 kg and 2 kg (b) 6 kg and 1 kg (c) 3 kg and 1 kg
(d) 4 kg and 2 kg (e) 4 kg and 3 kg
- 11) How many positive whole numbers, including 1, divide exactly into both 40 and 72?
- (a) 9 (b) 12 (c) 4 (d) 2 (e) 5
- 12) The product 7×7 has a ones digit of 9. The product $7 \times 7 \times 7$ has a ones digit of 3. If you take the product of 100 sevens, what will the ones digit be?
- (a) 1 (b) 3 (c) 5 (d) 7 (e) 9
- 13) In parallelogram $ABCD$ on the right, $AB = 10$, $AE = 8$, and $EC = 6$. What is the area of the quadrilateral $ABCE$ (which is shaded in the diagram)?
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- (a) 24 (b) 48 (c) 60
(d) 64 (e) 80
- 14) In the table shown on the right, each symbol a , b , and c represents a number. The sums of the numbers in each row and each column are given. What is the value of the expression $a + b - c$?
- | | | | |
|-----|-----|-----|----|
| a | b | a | 11 |
| b | a | c | 8 |
| b | c | a | 8 |
| 10 | 8 | 9 | |
- (a) 4 (b) 5 (c) 6 (d) 7
(e) 8
- 15) For how many three-digit whole numbers N is the sum of the digits of N equal to 25?
- (a) 2 (b) 6 (c) 3 (d) 10 (e) 8