

**The University of the West Indies**  
**The 2019 Junior Mathematical Olympiad**

FIRST ROUND EXAMINATION, GRADES 5 AND 6  
WEDNESDAY, FEBRUARY 20, 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.

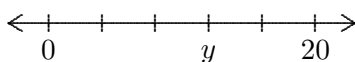
1) What is the value of  $(1 + 11 + 21 + 31 + 41) + (9 + 19 + 29 + 39 + 49)$ ?

- (a) 150                      (b) 199                      (c) 200                      (d) 249                      (e) 250

2) What is the value of  $1,000,000,000 - 777,777,777$ ?

- (a) 222,222,222    (b) 222,222,223    (c) 233,333,333    (d) 322,222,222    (e) 333,333,333

3) If the markings on the number line below are equally spaced, what is the value of  $y$ ?



- (a) 3                      (b) 10                      (c) 12                      (d) 15                      (e) 16

4) If  $991 + 993 + 995 + 997 + 999 = 5000 - N$ , what is the value of  $N$ ?

- (a) 5                      (b) 10                      (c) 15                      (d) 20                      (e) 25

5) A picture 3 feet wide is hung in the centre of a wall that is 19 feet wide. How many feet is an end of the picture from the nearest end of the wall?

- (a)  $1\frac{1}{2}$                       (b) 16                      (c)  $9\frac{1}{2}$                       (d) 8                      (e) 22

6) Which of the following fractions has the largest value?

- (a)  $\frac{8}{9}$                       (b)  $\frac{7}{8}$                       (c)  $\frac{66}{77}$                       (d)  $\frac{55}{66}$                       (e)  $\frac{400}{500}$

7) Which of the following numbers has the largest prime factor?

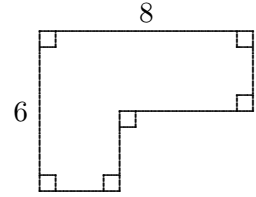
- (a) 39                      (b) 51                      (c) 77                      (d) 91                      (e) 121

8) How many whole numbers are there between  $\sqrt{8}$  and  $\sqrt{80}$ ?

- (a) 5                      (b) 8                      (c) 7                      (d) 6                      (e) 9

9) What is the perimeter of the polygon on the right?

- (a) 14                      (b) 20                      (c) 28                      (d) 48  
(e) Cannot tell from the information given



10) Which of the numbers below is closest to the product  $(0.48017)(0.48017)(0.48017)$ ?

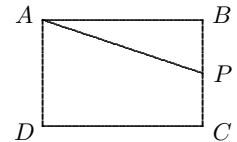
- (a) 0.011                      (b) 0.110                      (c) 1.10                      (d) 11.0                      (e) 110

11) The Fibonacci sequence begins 1, 1, 2, 3, 5, ... After the first and second 1's, each number is the sum of the two numbers before it. For example, after 3 and 5 comes 8, because  $8 = 3 + 5$ . Which of these numbers will occur in the Fibonacci sequence?

- (a) 35                      (b) 37                      (c) 33                      (d) 36                      (e) 34

12) The area of rectangle  $ABCD$  is  $24\text{ cm}^2$ , and  $BP = PC$ . What is the area of quadrilateral  $APCD$ ?

- (a)  $18\text{ cm}^2$                       (b)  $20\text{ cm}^2$                       (c)  $16\text{ cm}^2$                       (d)  $6\text{ cm}^2$   
(e)  $15\text{ cm}^2$



13) A contest began at noon one day and ended 1000 minutes later. At what time did the contest end?

- (a) 10:00 pm                      (b) midnight                      (c) 2:30 am                      (d) 4:40 am                      (e) 6:40 am

14) When finding the sum  $\frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \frac{1}{7}$ , what is the least common denominator one would use?

- (a) 120                      (b) 210                      (c) 420                      (d) 840                      (e) 5040

15) Jack had a bag of 128 apples. He sold 25% of them to Jill. Next he sold 25% of those remaining to June. Among those apples still in his bag, he picked out the shiniest one and gave it to his teacher. How many apples did Jack have left?

- (a) 95                      (b) 71                      (c) 63                      (d) 31                      (e) 7