

THE UNIVERSITY OF THE WEST INDIES, MONA CAMPUS
2013 JUNIOR MATHEMATICS OLYMPIAD

TEST FOR GRADES 4, 5, AND 6

Student Information

Name: _____

Grade: _____

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School Information

School: _____

Principal: _____

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Examination Questions

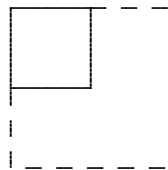
1) One tour bus can seat no more than 55 people. What is the smallest number of buses needed to take 160 people on a trip?

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

2) Nickiesha ate one sweetie one day, and each day afterward she ate one sweetie more than he did the day before. How many sweeties did she eat during her first week?

- (a) 6 (b) 12 (c) 14 (d) 24 (e) 28

3) Akeem's uncle needs 12 minutes to walk around a square plaza. How many minutes will he need to walk at the same pace around a plaza that has an area four times greater?



- (a) 48 (b) 24 (c) 30 (d) 20 (e) 36

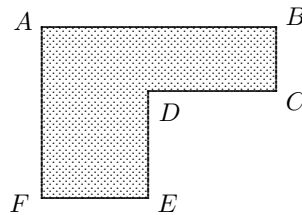
4) In which of the following numbers is the product of its digits greater than the sum of its digits?

- (a) 112 (b) 209 (c) 312 (d) 222 (e) 211

5) Four candy bars and three sweeties cost \$300. One candy bar costs \$60. How much does one sweetie cost?

- (a) \$15 (b) \$20 (c) \$25 (d) \$30 (e) \$60

6) In the figure below, the angles at A , B , C , E , and F are all 90° . If $BC = 3$, $CD = 6$, $DE = 5$, and $EF = 5$, what is the area of the shaded region?

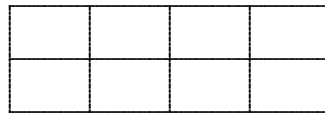


- (a) 58 (b) 88 (c) 15 (d) 30 (e) 43

7) Which four digits need to be removed from the number 4921508 to get the smallest possible three-digit number?

- (a) 4, 9, 2, 1 (b) 4, 2, 1, 0 (c) 1, 5, 0, 8 (d) 4, 9, 2, 5 (e) 4, 9, 5, 8

8) How many rectangles may be found in the figure below?



- (a) 30 (b) 28 (c) 8 (d) 20 (e) 42

9) What is the value of $1 - 2 + 3 - 4 + 5 - 6 + \dots + 53 - 54 + 55$?

- (a) -1 (b) 55 (c) 24 (d) 1 (e) 28

10) A certain lock uses three numbers, each with one digit, for a combination. For example, 9-1-0 and 4-5-5 could be combinations. How many combinations are possible that use three different odd digits?

- (a) 3 (b) 12 (c) 30 (d) 60 (e) 125

11) Maria has two apples, two bananas, and one mango. Each school day, from Monday to Friday, she will eat one piece of fruit. In how many ways can she do this?

- (a) 6 (b) 15 (c) 30 (d) 35 (e) 45

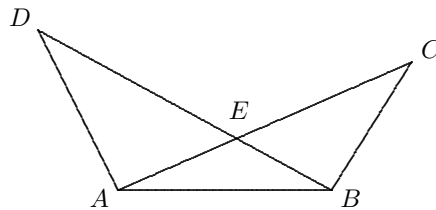
12) Suppose you count from 1 to 100 and clap your hands when you count either a multiple of 3 or a number which is not a multiple of 3 but ends in 3. How many times will you clap your hands?

- (a) 30 (b) 41 (c) 36 (d) 33 (e) 39

13) Anna bought a pizza and gave two-thirds of it to her sister Matilda. Then she gave half of the remaining part to her mother and ate the rest. What portion of the pizza did Anna eat?

- (a) $\frac{1}{12}$ (b) $\frac{1}{6}$ (c) $\frac{1}{2}$ (d) $\frac{1}{4}$ (e) $\frac{2}{3}$

14) In the figure below, the area of triangle ADB is 15, the area of triangle ACB is 12, and the area of triangle ABE is 4. What is the area of the pentagon $ABCDE$?



- (a) 19 (b) 31 (c) 23 (d) 27 (e) 35

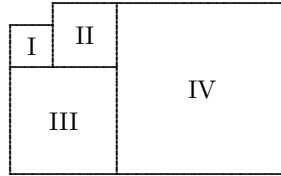
15) Shania subtracted the smallest three-digit number with all different digits from the largest three-digit number with all different digits. What was the result?

- (a) 864 (b) 885 (c) 800 (d) 899 (e) None of these

16) A vendor sells 360 chocolates each week. She purchases them at a supermarket at a cost of \$300 for a box of 8. However, she discovered that she can get a case of 60 of them at a wholesale shop for \$2,000. If she buys her chocolates from the wholesale shop, how much will she save each week?

- (a) \$1,500 (b) \$2,000 (c) \$2,500 (d) \$3,000 (e) \$3,500

- 17) In the figure below, Regions I, II, III, and IV are squares. The perimeter of Square I is 16 cm and the perimeter of Square II is 24 cm. What is the perimeter, in centimetres, of Square IV?

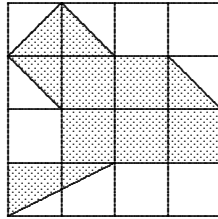


- (a) 56 (b) 60 (c) 64 (d) 72 (e) 80
- 18) How many different three-digit numbers divisible by 25 can be made with the digits 0, 3, 5, 7 if the digits can be repeated?
- (a) 16 (b) 9 (c) 81 (d) 64 (e) 3
- 19) All together, 6 chicks eat 8 cups of grain in 3 days. How many cups of grain will 3 chicks eat in 9 days?
- (a) 10 (b) 12 (c) 14 (d) 16 (e) 9
- 20) The first three terms in a sequence of numbers are 1, 2, and 3. After that, each term is the sum of the last three numbers that come before it. So, the fourth number in the sequence is 6, and so on. What is the eighth number in this sequence?
- (a) 20 (b) 99 (c) 37 (d) 11 (e) 68
- 21) Each of the boys Alan, Bob, Carl, and Doug has one and only one of the following animals: a cat, a dog, a goldfish, and a canary. Bob has an animal with fur. Doug has a pet with four legs. Carl has a bird, and Alan and Bob don't like cats. Which of the following sentences is not true?
- (a) Doug has a dog.
(b) Carl has a canary.
(c) Alan has a goldfish.
(d) Doug has a cat.
(e) Bob has a dog.
- 22) The ages of Juan and his sister add up to half their father's age. If Juan is 3 years older than his sister and 27 years younger than his father, how many years old is Juan?
- (a) 6 (b) 10 (c) 11 (d) 22 (e) 24

23) An odd whole number between 600 and 800 is divisible by 7 and by 9. What is the sum of its digits?

- (a) 9 (b) 20 (c) 19 (d) 18 (e) 14

24) In the figure below, each small square has area 1 cm^2 . What is the area, in square centimetres, of the shaded region?



- (a) 4.5 (b) 6 (c) 7.5 (d) 8 (e) 10

25) The weight of each possible pair of boys from a group of five was recorded. The following results were obtained: 90 kg, 92 kg, 93 kg, 94 kg, 95 kg, 96 kg, 97 kg, 98 kg, 100 kg, and 101 kg. What is the total weight of all five boys.

- (a) 225 kg (b) 230 kg (c) 239 kg (d) 240 kg (e) 250 kg

End of Questions

You may mail this completed question paper to:

Junior Olympiad
P.O. Box 94
Mona Post Office
Kingston 7

You may also deliver your entry by hand or by courier directly to the Department of Mathematics at the UWI, Mona. In all cases, an entry must be received by February 4, 2013 to guarantee consideration.

For more information, extra copies of this question paper, and the latest updates, please visit the following website:

<http://myspot.mona.uwi.edu/mathematics/>

(see the link to the Junior Olympiad Resource Centre).