Siam International Math and Science Olympics 2021

Mathematics Category

Mock Test



General Instructions

1. You have **ninety (90) minutes** to finish the test.
2. Write your answers on the **ANSWER SHEET**.
3. You may write your solutions on the **TEST BOOKLET**.
4. After the test, you must SUBMIT to the proctor both the TEST BOOKLET and the ANSWER SHEET.
5. This test covers FOUR (4) CATEGORIES namely; **ARITHMETIC & NUMBER THEORY, LOGICAL ANALYSIS, GEOMETRY, and COMBINATORICS**.
6. This test has two parts: Multiple Choice Questions (the first twenty-five questions) and Short Answer Questions (the last five questions). The first twenty-five (25) MCQs are worth 3 marks each and the last five SAQs are worth 5 marks each. The highest possible score is 100 marks. No point shall be deducted for incorrect answers.
7. You are **NOT ALLOWED** to use any calculating device during the test proper.
8. Any form of cheating is a ground for **DISQUALIFICATION**.

GRADE 5

LIVEWORKSHEETS

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PART 1 – Each question is worth 3 marks.

1. Mongkut noticed the subtraction sentence on a piece of paper as shown below. Two digits were blackened. If the sentence is correct, what is the sum of the missing digits?

   ▮4 – 3▮ = 46

   A. 16 B. 17 C. 18 D. 19

2. Mekhala has a honeydew that weighs 2100 grams. She cuts the watermelon into 4 parts in the ratio 1:2:3:4. How many grams does the biggest part weigh?

   A. 210 g
   B. B. 105 g
   C. C. 630 g
   D. D. 840 g



3. Pensri replaces the letter **A** with a number and finds the statement below true. Phet replaces it with another number and finds the statement true as well. What two different numbers did they use?

   A x A – 9 x A + 20 = 0

   A. 3 and 5 B. 3 and 4 C. 4 and 5 D. 5 and 6

4. The 6 – digit number $\overline{ABAB}$ is divisible by 15 where A > B. What is the least value of A - B?

   A. 3 B. 2 C. 9 D. 6

LIVEWORKSHEETS

5. Chai Charoen multiplied the digits of a 3-digit number. She got 84. If she will subtract the largest digit from the sum of the two smaller digits, what will she get?
   A. 1 B. 2 C. 0 D. 3

6. Sawatdi has a Magical Machine that does these rules when a numbered chip is put in it:
   (a) If the chip number is a single digit, it triples the number.
   (b) If the chip number is more than one digit, it multiplies the digits of the number.
   Sawatdi put in the chip numbered **2** and put back whatever chip number the machine would discharge. What is the 15th number Sawatdi put in?

   A. 6 B. 18 C. 24 D. 8

7. How many whole numbers between 100 and 600 are divisible by 2, 3, 4, and 5?
   A. 10 B. 9 C. 8 D. 7

8. Prija wrote the counting numbers continuously without spaces between numbers and digits as shown below. What is the **2021st** digit in the number?

   12345678910111213141516171819202122232425262728293O...

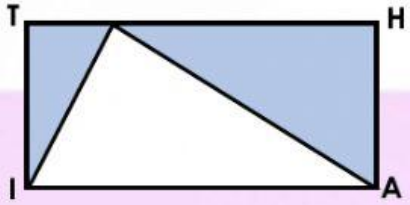
   A. 6 B. 2 C. 1 D. 0

9. What is the units' digit in the sum of $2^{2021} + 3^{2021} + 6^{2021}$?
   A. 1 B. 2 C. 6 D. 3

LIVEWORKSHEETS

10. Which is the least among the numbers below?
A. 2^{24} B. 3^{20} C. 5^{16} D. 11^{8}

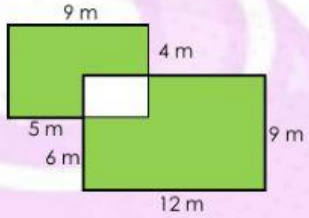
11. The total area of the shaded regions is 78 cm^2. Find the area of rectangle THAI shown below.



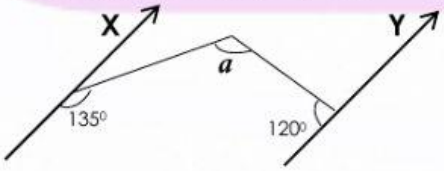
A. 38 cm^2 B. 78 cm^2 C. 156 cm^2 D. 234 cm^2

12. The figure shown below is made up of two rectangles that intersect. Find the sum of the shaded areas.

A. 171 m^2
B. 147 m^2
C. 159 m^2
D. 135 m^2



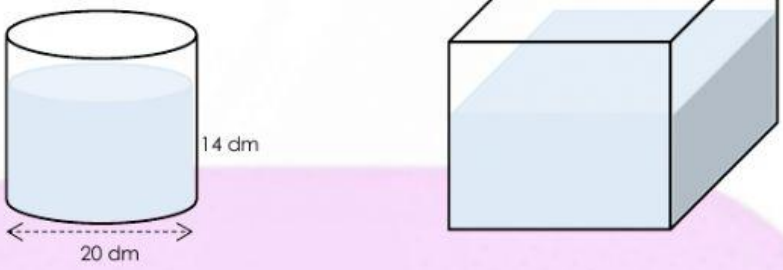
13. In the figure shown below, lines X and Y are parallel. ∠b is thrice ∠a and ∠a = 37^0. Find the measure of ∠Z.



A. 105^0 B. 111^0 C. 53^0 D. 106^0

LIVEWORKSHEETS

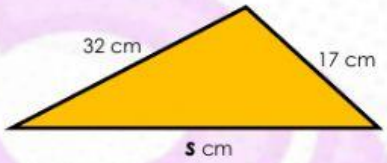
14. A cylindrical tank with a diameter of 20 dm is filled with water to a depth of 14 dm. The water is then transferred to a rectangular tank with a square base 20 dm on each side. Find the depth of the water in the rectangular tank. (Use $\pi = \frac{22}{7}$)



A. 14 dm B. 11 dm C. 7 dm D. 21 dm

15. A triangle has sides 32 cm, 17 cm and **s** cm. How many possible integral values of **s** are there?

A. 35
B. 34
C. 33
D. 32



16. There 4 Mathematics books, 5 Science books, and 6 English books on a shelf. If one picks a book at random, without looking, what is his chance of getting either a Mathematics or a Science book?

A. $\frac{4}{15}$ B. $\frac{1}{3}$ C. $\frac{2}{5}$ D. $\frac{3}{5}$

17. Using eight of the digits from 0 to 9 to form two four-digit numbers, what is the least difference between these two numbers?

A. 25 B. 136 C. 247 D. 23

LIVEWORKSHEETS

18. In every Primary 6 class in Bright Child Academy, 60% are boys. Which of the following cannot be a Primary 6 class?
    A. 9 boys & 6 girls
    B. 12 boys & 18 girls
    C. 10 girls & 15 boys
    D. 21 boys & 14 girls

19. Sunti put 250 cards numbered 1 to 250 into a box. He randomly picks a card at a time. What is the least number of cards he must pick to make sure that at least one of the card is a multiple of 4 or 5?

    A. 112 B. 101 C. 150 D. 151

20. Lek wants to arrange 3 identical pens and 5 identical pencils in a plastic case. If she puts in the case one item each time, in how many ways can he put the items in the case?

    sAMI SlaM AlmS

    A. 56 B. 15 C. 28 D. 40 320

21. Niran was tasked to paint the word **MATHEMATICS** on the exhibit wall. He charges 12 baht to paint the first 3 letters and 3 baht for each succeeding letters. How much does he charge in painting the entire word?

    A. 48 baht B. 36 baht C. 15 baht D. 44 baht

22. Sonchai cuts a big pizza into 8 equal pieces. He then cuts each piece into 3 equal pieces. Finally, he cuts each piece into 2 equal pieces. He gave one piece to each of the 13 couples and 11 singles. He ate 3 piece. What fraction of the pizza was left to Sonchai?
    A. $\frac{1}{6}$
    B. $\frac{1}{4}$
    C. $\frac{1}{3}$
    D. $\frac{1}{8}$



LIVEWORKSHEETS

23. It is now 8:35 am on a standard clock. If Yay's clock moves 4 minutes faster every hour than a standard clock, what will it show when the accurate time is 3:35 pm the next day?
A. 10:35 pm B. 7:39 pm C. 6:35 pm D. 5:39pm

24. In a kitchen bar, there are 9 jars. A jar contains at least one cookie and any two adjacent jars have at most 12 cookies. At least, how many cookies are in the jars altogether?



A. 48 B. 58 C. 49 D. 59

25. Kovit and his 9 friends wish to divide equally 6 pieces of baguette bread among themselves. At least how many cuts must Kovit make for each of them to have equal share?





A. 18 B. 16 C. 13 D. 11

PART II – Each question is worth 5 marks.

1. Yay Kannika gives 113 cookies to her 7 grandchildren. Each gets different number of cookies. Ratanaporn gets the highest number of cookies. What is the least number of cookies that Ratanaporn could get?

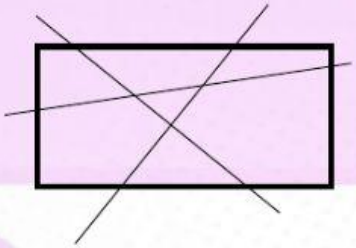
Answer

LIVEWORKSHEETS

2. If $\frac{1}{a} + \frac{1}{b} = \frac{2}{15}$, where a ≠ b, what is the least value of a + b?

Answer

3. A line divides a rectangle into two regions; two lines divide it into four regions; and three lines divide it into 7 regions. What is the greatest number of regions the rectangle can be divided into by 9 lines?



Answer

4. If the sum of n consecutive numbers is 500, what is the largest value of n?

Answer

5. Charunee and her mother were both born in October. Today is October 31, 2021. She added her age and her mother's, her birth year and her mother's. Which sum does Charunee get?

Answer

- ***End*** -

LIVEWORKSHEETS