

ĐỀ SỐ 02

1st International Talent Mathematics Contest 2019

Part 1: Questions no. 1-12, each correct answer is worth 4 points, 1 point for a blank answer, and 0 point for each incorrect answer.

1. Given that $2 + 0.5 + 0.06 + 0.002 = a$ and $2 + 0.0 + 0.01 + 0.009 = b$.

What is the difference of a and b?

- A. 0.543 B. 0.435 C. 0.453 D. 0.354 E. 0.345

2. What is the value of $7 + 14 - 21 + 28 + 35 - 42 + 49 + 56 - 63 + 70 + 77 - 84 + 91 + 98 - 105 + 112 + 119 - 126 + 133 + 140$?

- A. 607 B. 588 C. 441 D. 345 E. 315

3. Given that $N = 1 \times 2019 + 2 \times 2019 + 3 \times 2019 + \dots + 10 \times 2019$.

What is the quotient when N is divided by 5?

- A. 18,585 B. 20,425 C. 22,209 D. 24,305 E. 25,119

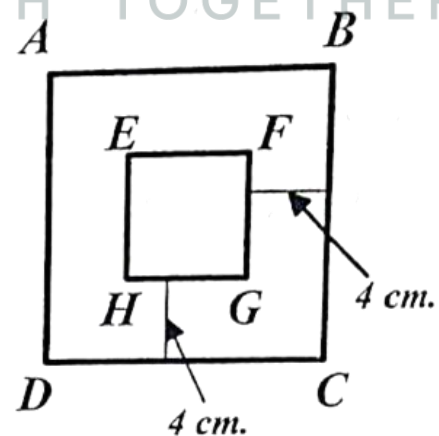
4. In the adjoining figure, ABCD and EFGH are squares. FG and HG are 4 cm far from BC and DC respectively. The area of ABCD is 256 square of centimeters.

What is the perimeter of EFGH?

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What is the perimeter of EFGH?

- A. 32 cm. B. 42 cm. C. 48 cm.
D. 64 cm. E. 72cm.



5. Consider the following process.

Step 1: Draw a square then divide into 4 equal parts as shown in the figure, →



then choose 1 part to paint red color as shown in the figure.

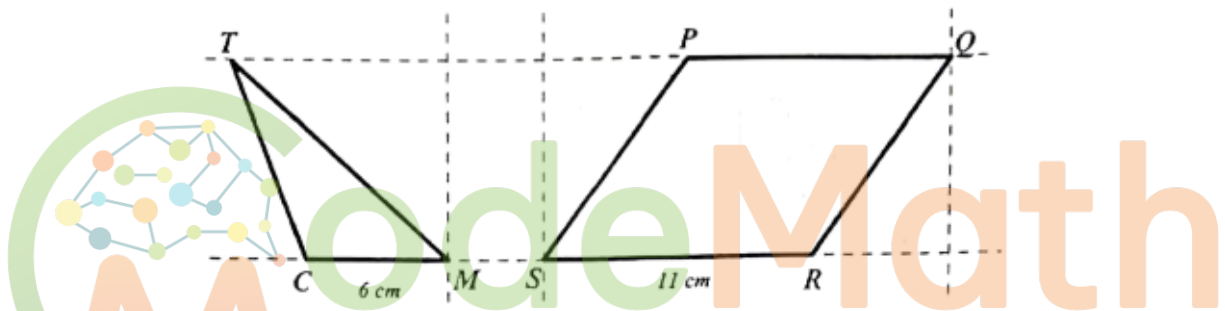
Step 2: Repeat step 1 to the red part and paint yellow color on the chosen part.

Step 3: Repeat step 1 to the yellow part and paint green color on the chosen part.

What fraction of the whole square is the green part?

- A. $\frac{1}{24}$ B. $\frac{1}{32}$ C. $\frac{1}{64}$ D. $\frac{1}{72}$ E. $\frac{1}{128}$

6. In the adjoining figure, the area of a triangle TMC is 24 square of centimeters and PQRS is a parallelogram.



What is the area of PQRS in square of centimeters?

- A. 64 B. 88 C. 66 D. 77 E. 99

7. Let T, M, and C represent different digits from 0 to 9.

Given that $\overline{TMC7}$ is the largest 4-digit number which is divisible by 9.

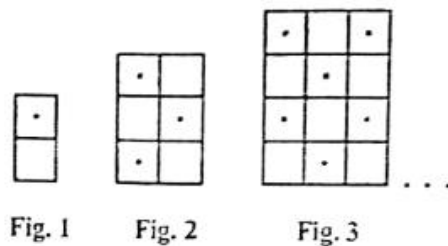
Determine the value of $T + M - C$.

- A. 20 B. 18 C. 15 D. 14 E. 16

8. A train departed station A with speed 30 kilometers per hour. After departure station A 2 hours and 30 minutes, the train reached station B and departed station B with speed 40 kilometers per hour. After departure station B 3 hours and 15 minutes, the train reached station C. Determine the distance between station A and B in kilometers.

- A. 202 B. 205 C. 210 D. 212 E. 215

9. Consider a pattern of number of squares and number of points in the squares as follows.



Determine the sum of the numbers of points in Fig. 17 and in Fig.27.

- A. 504 B. 514 C. 531 D. 542 E. 547

10. A mathematics contest, John took 3 parts, 29 questions in total, and got the scores as follows.

Part 1: question 1-12, 4 scores for each right answer, 0 score for each wrong or blank answer.

Part 2: question 13-24, 6 scores for each right answer, 0 score for each wrong or blank answer.

Part 3: question 24-29, 6 scores for each right answer, 0 score for each wrong or blank answer.

John got the scores 75% of part 1, 75% of part 2, and 40% of part 3.

What is the total scores that John got in this mathematics contest?

- A. 20 B. 65 C. 84 D. 96 E. 102

11. There are 7 students. Each of them has to answer 7 questions.

Each right answer is worth 7 marks and nothing for each wrong answer.

The total marks of 7 students is two times of 7 less than 70 marks.

How many questions did the student who got the possible greatest marks have to put right answers?

- A. 7 B. 6 C. 8
D. 5 E. The information is not sufficient to conclude.

12. One day a student has to go to school and go back home.

The student can travel by a car or bus or school bus or motorcycle.

In how many ways can the student go to school and go back home?

- A. 18 B. 14 C. 16 D. 15 E. 12

Part 2: Questions no. 13-24, each correct answer is worth 6 points, 1.5 points for a blank answer, and 0 point for each incorrect answer.

13. Find the value of 0.0002×0.1009 .

- A. 0.2018 B. 0.02018 C. 0.002018 D. 0.0002018 E. 0.00002018

14. Let N represent a 2-digit number.

Given that $N \times N + N + N + N \div N = 256$.

What is N ?

- A. 11 B. 14 C. 12 D. 15 E. 13

15. There was the number of birds on a branch of a tree.

After the first time of gun shooting, a half of the number of birds flew away.

After the second time of gun shooting, one third of the rest birds flew away.

After the third time of gun shooting, a half of the number of the rest birds flew away.

There are 6 birds on the branch of a tree after the third time of gun shooting.

What is the number of birds on the branch of a tree at the beginning?

- A. 32 B. 34 C. 37 D. 36 E. 35

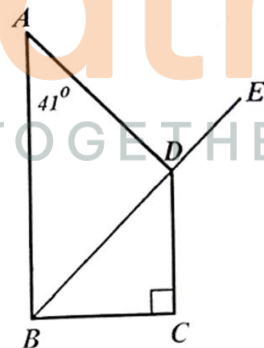
16. In the adjoining figure, $ABCD$ is a trapezoid.

The angle BAD is equal to 41° .

BE bisects the angle ADC .

What is the measure of the angle CBD ?

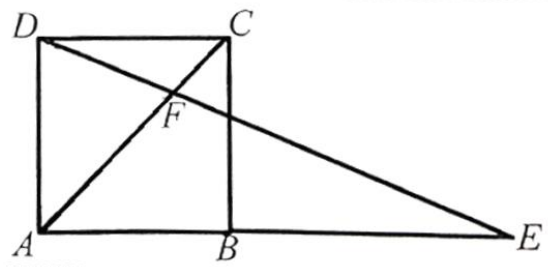
- A. 20° B. 20.5° C. 22.5°
D. 24.5° E. 25°



17. The dimension of a rectangular box is the width 16 cm., length 8 cm., and height 12 cm. The box can contain 192 dices of equal size exactly. What is the length of each side of the dice in the box?

- A. 6 B. 3 C. 5 D. 2 E. 4

18. Let ABCD be a square. \overline{AB} is extended from B to E so that $BE = AC$. F is the intersection point of \overline{DE} and \overline{AC} . What is the measure of $\angle EFA$?



- A. 150° B. 135° C. 120°
D. 112.5° E. 105°

19. When Mark got on a car from his office to go home, he saw the time on his watch a little bit after 18.00 and the angle 110° between long and short hands.

Mark reached his home before 19.00 and on the watch the angle also 110° between long and short hands.

How long in minutes did Mark spend travelling from his office on the way back to home?

- A. $36\frac{2}{3}$ B. 40 C. 42 D. $45\frac{2}{5}$ E. 45

20. Given that the product of 5 positive integers is 2017. Let T be the sum of this 5 positive integers. Which one of the following statements is true?

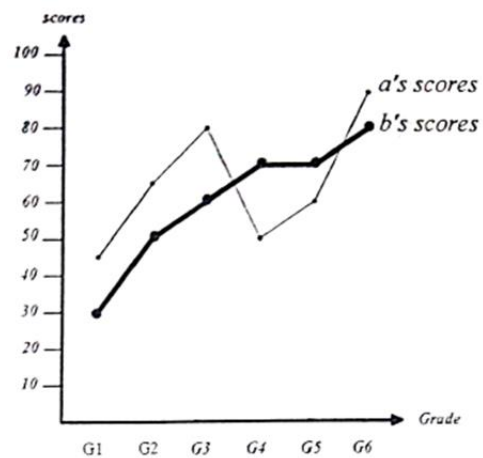
- A. T is divisible by 47. B. T is divisible by 37.
C. T is divisible by 17. D. T is a prime number.
E. T has more than one value.

21. Suppose that the time now is at 11:15 Saturday 9th of February 2019. What is the time at the next 2562 minutes?

- A. at 23:59 Saturday 9th of February B. at 23:57 Sunday 10th of February
C. at 01:15 Monday 11th of February D. at 05:57 Monday 11th of February
E. at 07:24 Monday 11th of February

Tổng hợp đề thi và đáp án kỳ thi ITMC khối 5

22. The following line graph shows the comparison of mathematics scores of students a and b in grade 1 to grade 6. Which one of the following statements is false?



- A. The highest score that a can do is 90.
- B. The highest score that b can do is 80.
- C. b can do the scores increasing every year.
- D. The total score from grade 1 to grade 6 of b is 360.
- E. In grade 4, the score of a is 20 less than the score of b.

23. A supermarket offers a promotion to sell orange juice in various sizes of containers as follows.

A 250 ml. container is at price 11 baht.

A pack of 6 250 ml. containers is at price 55 baht.

A pack of 4 500 ml. containers is at price 68 baht.

A pack of 3 1000 ml. containers is at price 100 baht.

How much orange juice is the possible largest quantity that Jane can buy by 390 baht?

(Note that baht is the currency of Thailand.)

- A. 4 liters
- B. 8.5 liters
- C. 10.25 liters
- D. 11.5 liters
- E. 12.25 liters

24. There are 2 types of breads. One piece of type1 bread is at price 12 baht and one piece of type2 bread is at price 15 baht. In how many ways can Dang buy 2 types of breads with all of his money 300 baht? (Note that baht is a currency of Thailand.)

- A. 10
- B. 8
- C. 7
- D. 6
- E. 4

Part 3: Questions no. 25-29, each correct answer is worth 7 points, and 0 point for each incorrect or blank answer.

In the case that an answer is not integral, students have to put the most nearest integral answer. Students have to answer the last five digits in the case that the answer from calculating is more than 5 digits.

25. Find the value of $11112 \times 88888 - 22222 \times 44445$

26. The rectangle ABCD has area 2019 square centimeters and perimeter p centimeters. Suppose that each side of ABCD is increased by 1 centimeter. The area of the new rectangle is 2562 square centimeters. What is p's value?

27. How many integers from 1 to 2562 are there such that each integer has 4 in the units place and is divisible by 9?

28. Given that \overline{AB} , \overline{CD} , \overline{EF} , \overline{GH} and \overline{IJ} represent 2-digit numbers where different letters represent different digits. What is the maximum possible value of

$$\overline{AB} - \overline{CD} + \overline{EF} - \overline{GH} + \overline{IJ}$$

29. A food shop sets the selling price of a box of supplementary food equal to twelve times its cost.

The shop offers a promotion that each customer will get 60% off the selling price.

In selling a box of supplementary food, the shop gets profit 209 baht, what is the cost?

Bonus Question (Student may or may not give the answer)

A correct answer is worth 20 points. An incorrect answer is deducted 7 points and 0 point for blank answer.

In the case that an answer is not integral, students have to put the most nearest integral answer. Students have to answer the last five digits in the case that the answer from calculating is more than 5 digits.

30. The distance of the straight road from Jack's home to Ann's home is 77 kilometers. Jack departed his home at noon (12:00) forward to Ann's home.

When Jack reached Ann's home, he immediately left Ann's home backward to his home. A little while after noon, Ann departed her home forward to Jack's home. Likewise, at once Ann reached Jack's home, she immediately left Jack's home backward to her home.

Both Jack and Ann travelled on the straight road without taking a rest on the way. Ann reached her home at time 17:06.

On the way, after Ann left her home for 11.5 kilometers to travel to Jack's home, at this moment, two of them passing each other. Then, both of them continued to travel until reaching the home of the other party, then traveling back to their own home. They passing each other again on the way back to their own home at the point 10.5 kilometers far from Ann's home.

At what time did Jack reach his home?

(Student must answer in term of 4-digit number.

For example, at the time 13:25 the answer is 1325

or at the time 17:54 the answer is 1754)