ĐỀ SỐ 01:

2018 Preliminary National Examinations (Pre-NE)

Part I - For question 1 – 12, each correct answer is worth 4 points, 1 point for a blank answer, and 0 point for each incorrect answer.

1. Let a is 2,561 more than 2,018 and b is 2,018 less than 2,561.

Find the value of a + b.

A. 5,643 B. 5,122 C. 4,579 D. 2,561 E. 2,018

2. Given that 1 + 22 + 333 + 4444 + 55555 = □ + 5. The value of □ ÷ 71 is:

A. 850 B. 875 C. 882 D. 895 E. 898

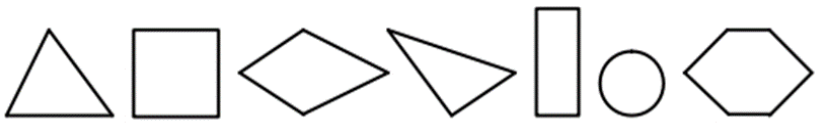
3. Given that $\frac{1}{17}+\frac{3}{17}+\frac{5}{17}+\frac{a}{b}=1$ where a and b are positive integers such that $\frac{a}{b}$ is a simplest fraction. The value of a + b is equal to:

A. 17 B. 19 C. 21 D. 23 E. 25

4. Let A and B are different points on a piece of paper. How many straight lines can be drawn to pass through these two points?

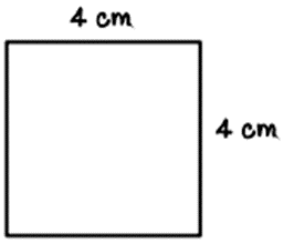
A. 1 B. 2 C. 3 D. 4 E. infinite

5. How many shapes are there among the following geometric shapes in each of which has at least one interior acute angle?



A. 6 B. 4 C. 3 D. 2 E. 1

6. In the following figure, the side of the square is 4 cm. Divide this square into smaller squares with the length of 1 cm, then shade 4 small squares. What is the ratio of the shaded area to the whole area?



A. 1:2 B. 1:4 C. 1:5 D. 1:6 E. 1:3

7. In a year, if the 5th August is Sunday, what day is the 5th July?

A. Monday B. Tuesday C. Wednesday

D. Thursday E. Friday

8. A train departs a station at 11:40 and arrives at destination 75 minutes later. At what time will the train arrive at destination?

A. 12:15 B. 12:45 C. 12:55

D. 13:05 E. 13:15

9. Tom has money 670 dollars in his wallet. The money consists each one of 500, 100, 50, and 20 dollars bank notes. If Tom uses a bank note to buy 2 bottles of drinking water priced 7 dollars each, what is the possible maximum change that Tom should receive?

A. 656 dollars B. 556 dollars C. 486 dollars

D. 156 dollars E. 86 dollars

10. The number of students in each class of a primary school is shown in the following table. How many students are there in Grade 4?

Class	Number of students
Grade 1	245
Grade 2	253
Grade 3	248
Grade 4	?
Grade 5	251
Grade 6	249
Total	**1498**

A. 248 B. 249 C. 250 D. 251 E. 252

11. A bag contains 23 white, 19 green, 29 blue, 17 yellow, and 28 red buttons. A girl randomly picks up a button from the bag. What color of button is the highest chance of being picked up?

A. red B. white C. green

D. blue E. yellow

12. In a survey, 337 students choose their favorite sport from football, basketball, volleyball, swim, tennis, and table tennis. One student chooses one sport or not any sport. The number of students choosing the sports are shown in the following table. How many students who do not choose any sport are there?

sports	Number of students
football	109
basketball	78
volleyball	51
swim	35
tennis	14
table tennis	39

A. 11 persons B. 13 persons C. 15 persons

D. 16 persons E. 18 persons

Part II - For question 13 – 24, each correct answer is worth 6 points, 1.5 point for a blank answer, and 0 point for each incorrect answer.

13. Given that $\left(1+\frac{1}{3}\right)\left(1+\frac{1}{4}\right)\left(1+\frac{1}{5}\right)\left(1+\frac{1}{6}\right)=\frac{a}{b}$ where a and b are positive integers such that $\frac{a}{b}$ is in simplest form. The value of a + b is:

A. 361 B. 180 C. 90 D. 51 E. 10

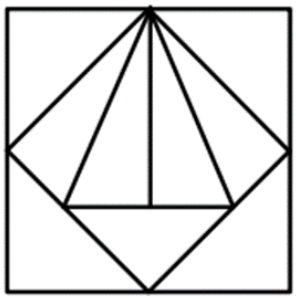
14. How many digits are in the quotient of 111222333444555666777888999 divided by 111?

A. 27 B. 25 C. 24 D. 10 E. 9

15. Given that N= 9 + 99 + 999 + 9999 + 99999. What is the sum of all digits in N?

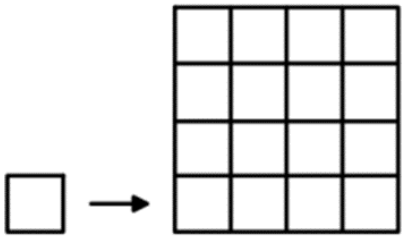
A. 9 B. 10 C. 15 D. 40 E. 45

16. How many quadrilaterals are in the following figure?



A. 13 B. 12 C. 11 D.10 E. 9

17. In the adjoining figure, a big square consists of sixteen small squares. If 4 small squares are removed from the big square in order to yield a polygon with greatest number of sides. How many sides of the new polygon are there?



A. 20 B. 18 C. 15 D. 12 E. 8

18. There are two pieces of paper A, B in square shape. Square A has a side of 6 inches and square B has a side of 9 inches. Each square is divided into 9 small squares of the same size. Put 4 small squares from the square B on a table. How many small squares from the square A can we congruently put over the 4 small squares?

A. 10 B. 9 C. 8 D. 7 E. 6

19. A waiter counts chopsticks in a restaurant. If he counts 3 pairs of chopsticks each time, there is 1 pair left. If he counts 4 pairs of chopsticks each time, there are 2 pairs left. If he counts 5 pairs of chopsticks each time, there are 4 pairs left. If the restaurant has chopsticks not exceed 40 pairs. How many chopsticks does the restaurant have?

A. 34 B. 42 C. 56 D. 68 E. 72

20. A girl folds several pieces of paper to be stars and put into a number of bags as follows:

2 stars is put into bag 1, 4 stars is put into bag 2

6 stars is put into bag 3, 8 stars is put into bag 4, and so on.

If the girl folds 90 stars, at least, how many possible number bags does the girl have to prepare for putting stars?

A. 7 B. 8 C. 9 D. 10 E. 12

21. A class of students is divided into two groups for counting numbers. In group 1, the first student starts to count number 1, then each student counts the next number which is 3 units greater than the previous one. In group 2, the first student starts to count number 50, then each student counts the next number which is 4 units less than the previous one. If the first student from group 1 starts to count number 1, then follows by the first student from group 2 to count number 50 and alternately and so on. What is the first same number counted by two students?

A. 18 B. 20 C. 22 D. 24 E. 28

The following information is needed to answer question 22 to 24.

At the 2018 FIFA world cup tournaments, the 32 teams were drawn into 8 groups A, B, C, D, E, F, G, and H of 4 teams. In the first round any two teams played together only one match. Each match the winner got 3 points, no point for the loser. If a match ended in a tie, each team got 1 point. After the first round ended, the first two teams with highest points in each groups would enter to the second round.

22. In the first round, the match results of group G consisting of nation teams of England, Belgium, Tunisia, and Panama were as follows:

Belgium	VS	Panama	Belgium	won	3 – 0
Tunisia	VS	England	Tunisia	lost	1 – 2
Belgium	VS	Tunisia	Belgium	won	5 – 2
England	VS	Panama	England	won	6 – 1
England	VS	Belgium	England	lost	0 – 1
Panama	VS	Tunisia	Panama	lost	1 – 2

After the first round ended what was the total points of group G?

A. 15 B. 16 C. 17 D. 18 E. 19

23. In the first round of the 2018 FIFA world cup tournaments, in group D, Switzerland VS Costa Rica, after the first half finished Switzerland leaded Costa Rica 1 – 0 and in the second half both teams shot 3 scores in total. Which one of the following was impossible result when the match ended?

A. The match ended in a tie.

B. Costa Rica won with different scores of 2.

C. Switzerland won with different scores of 4.

D. Switzerland won with different scores of 2.

E. Switzerland won with different scores of 1.

24. After the first round of the 2018 FIFA world cup tournaments ended. What was the possible maximum total points of 32 teams?

A. 128 B. 132 C. 144 D. 150 E. 160

PART III For questions 25 – 29, each correct answer is worth 6 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. What is the value of $7 \times 9 \times 11 + 9 \times 11 \times 13$?

26. Let ABCD be a rectangle. E and F are points on $\overline{AB}$ and $\overline{CD}$ respectively such that AEFD is a square. The perimeters of the square AEFD and rectangle BCFE are 20 and 18 respectively. Find the perimeter of ABCD.

27. Let $d_1, d_2, d_3, \ldots, d_{12}$ be different positive numbers in increasing order each of which is a divisor of 200. Find d_9.

28. In the following from 1 to 20, the digit 1 appears 12 times in total such as 1 appears 2 times in "11".

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

How many times in total does digit 3 appear in sequence of numbers from 1 to 131?

29. A game of putting marbles in a row of 10 small squares, there are two players. The rule of the game are the following:

(i) The players alternate turns.

(ii) Each player, when it is their turn, put at least one marbles but not exceed 5 marbles into the squares. The players must put marbles which started from the most left square continuously.

The last player who puts marble (s) is the loser.

For example:

A and B are players and player A begins the game.

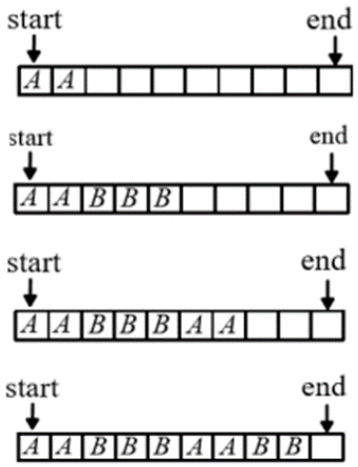
Turn 1: Player A puts 2 marbles.

Turn 2: Player B puts 3 marbles.

Turn 3: Player A puts 2 marbles.

Turn 4: Player B puts 2 marbles.

Turn 5: Only one square is left. Player must put a marble. The loser is player A.



If there is a row of 40 squares in the game, how many marbles should the player in Turn 1 put in squares in order to guarantee a win?

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

A correct answer is worth 20 points. An incorrect answer is lost 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. Joe and Jane play a game "guess a code". A code consists of four digits each of which could be 0 to 9 and not repeated. Joe sets a code, and Jane guesses the code. Each time Jane guesses the code, Joe has to tell number of right digits and number of right digits in right positions in the code.

For example:

Suppose that Joe sets 2561 as a code and Jane guesses as 2018. This means that Jane guesses 2 right digits (2 and 1) and 1 digit is in the right position (the digit is 2).

If Jane guesses 5 times for a code set by Joe, then Joe tells the number of right digits in the code as in the following table.

Time of guess	Code is guessed by Jane	Joe tells the number of	
		right digits in the code	right digits in the right position in the code
1	4567	1	1
2	2345	3	0
3	3259	2	1
4	4823	3	2
5	8901	1	1

Determine the code which is set by Joe.

ĐỀ SỐ 02

1. Zari and Lily played at the beach for $1\frac{1}{3}$ hours. What is the amount they played, in minutes?

A. 20 B. 40 C. 60 D. 80 E. 100

2. Mr. Lee check out of the hotel on Saturday. He had stayed for three nights. On what day of the week did he check in?

A. Monday B. Tuesday C. Wednesday D. Thursday E. Friday

3. How many terms does the following number sequence have? 1; 4; 7; 10; 13; 16; 19; … ; 94; 97; 100.

A. 34 B. 35 C. 50 D. 51 E. 52

4. The average of three numbers is 35. Find the largest number, given that the first number is twice the second number, the second number is twice the third number.

A. 15 B. 30 C. 60 D. 120 E. 240

5. Divide the number A by 26 to get a remainder of 17. How much must A be subtracted so that the division leaves no remainder and the quotient decreases by 1?

A. 33 B. 16 C. 17 D. 43 E. 1

6. There is a total of 720 kg of coffee including three types. 1/6 of the coffee is type I, 3/8 of the coffee is type II. The rest is type III. Calculate the amount of coffee type 3, in kilograms.

A. 330 B. 120 C. 270 D. 390 E. 450

7. Bella took the ferry at 6:13 and arrived at the next port one hour and 12 minutes later. 5/12 of the way through the trip, she received a phone call from her sister. What time did Bella's sister call her?

A. 6:43 B. 7:25 C. 5:01 D. 5:43 E. 7:12

8. The sum of two numbers is 104. Find the large number given that one half of the first number is less than one sixth of the second number 4 units.

A. 12 B. 72 C. 13 D. 84 E. 32

9. The perimeter of a rectangular field is 784 m. Given that, when you add the digit 2 before the width, the length will be obtained. Calculate the area of the rectangular field..

A. 296 m2 B. 96 m2 C. 28416 m2 D. 18816 m2 E. 77616 m2

10. The sum of all digits of a two-digit number is 12. If the two digits are swapped, the number is decreased by 18. What is the number?

A. 30 B. 93 C. 66 D. 57 E. 75

11. A faucet fills a half of the tank after the first hour. In the second hour, the faucet continues to flow four ninths of the tank. After flowing for 2 hours, how many parts of the tank are still remaining?

A. $\frac{1}{18}$ B. $\frac{1}{2}$ C. $\frac{17}{18}$ D. $\frac{11}{18}$ E. $\frac{7}{18}$

12. When Kaine got home from school, he read for 30 minutes. Then he played basketball in his backyard for another 20 minutes. His mom called him in for dinner at 6:05 p.m. What time did Kaine get home from school?

A. 5:15 B. 5:20 C. 5:30 D. 6:00 E. 6:30

13. Both two buckets contain 398 liters of petrol. If 50 liters are poured from the first bucket to the second one, the second bucket is 16 liters more than the first one. How many liters of petrol were initially in the first bucket?

A. 191 B. 241 C. 161 D. 201 E. 182

14. The value of 1 + 2 + 3 + … + n is 253. Find the value of n.

A. 19 B. 20 C. 21 D. 22 E. 23

15. Given the fraction 12/37. Find a natural number so that if we add up this number to the numerator and denominator of the fraction, we get the fraction 3/8 .

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

16. The age of the son is half the difference between the ages of the father and the son. Four years ago, the son's age was one third of the difference between the ages of the father and the son. When the son's age is one fourth the difference between the father's age and the son's age, what is the father's age?

A. 6 B. 24 C. 30 D. 36 E. 40

17. Three classes 4A; 4B and 4C went to plant trees. The number of trees of class 4A and 4B that can be planted is 41 trees. The number of trees of class 4B and class 4C that can be planted is 43 trees. The number of trees of 4C and 4A that can be planted is 42 trees. How many trees did class 4A plant?

A. 63 B. 22 C. 21 D. 20 E. 19

18. Zari has a number of marbles not exceeding 80, in which the number of red marbles is 5 times the number of blue marbles. If Zari has 3 more blue marbles, then the number of red marbles is 4 times the number of blue marbles. How many marbles did Zari have at first?

A. 72 B. 80 C. 60 D. 15 E. 12

19. A ball falls from a height of 100 m. Each time it hits the ground, the ball bounces back 3/5 of its previous height. How many meters will the ball travel after the fifth time it hits the ground? (Write the answer as a mixed fraction).

A. $292\frac{3}{25}$ B. $361\frac{3}{5}$ C. $292\frac{3}{5}$ D. $361\frac{3}{25}$ E. $361\frac{3}{125}$

20. Leo has two rectangular glass panels. The width of each panel of glass is 1/2 of its length, and the length of the small panel is exactly 1/2 the same as the width of the large panel. He put two glass panels together and got a rectangle with an area of 90 dm2 . Find the length of the smaller panel of glass.

A. 6 B. 7 C. 8 D. 9 E. 10

21. Find the value of the sum:

$$1+\frac{1}{3}+\frac{1}{9}+\frac{1}{27}+\frac{1}{81}+\frac{1}{243}+\frac{1}{729}$$

A. $\frac{2186}{729}$ B. 3 C. 2 D. 1 E. $\frac{1093}{729}$

22. Find a 2-digit number given that if we insert the digit 0 between the two digits of that number, we get a new number equal to 7 times the original number.

A. 12 B. 15 C. 21 D. 32 E. 35

23. A rectangular garden has a length of 35 m. The garden is expanded in width, making the width more than half as much as before and the area is increased by 280. Calculate the width of the garden after expansion.

A. 35 B. 24 C. 16 D. 18 E. 8

24. There are two baskets of oranges. If 4 oranges are added to the first basket, then the number of oranges in the two baskets are equal. If 24 oranges are added to the first basket, then the number of oranges in the first basket is 3 times the number of oranges in the second basket. How many oranges were in first basket at the beginning?

A. 6 B. 8 C. 10 D. 20 E. 30

25. Find the smallest 4-digit number such that dividing it by 675 gives the largest remainder.

26. Three classes 4A, 4B and 4C planted 120 trees altogether. Class 4B planted 5 more trees than class 4A but 8 plants less than class 4C. How many trees did class 4B plant?

27. The perimeter of a rectangular field is 240m. The field is divided into two small fields: a square field and a rectangular field. The total perimeter of the two small fields is 330 m. Find the area of the original field.

28. When numbering the pages of a book, it is found that on average, each page must use two digits. How many pages does that book have?

29. Two faucets flow into a tank, it takes 6 hours to fill the tank. Both faucets flow together for 4 hours, the first faucet stops, the second faucet continues to flow for another 3 hours, then the tank is full. How long does it take for the second faucet to flow alone to fill the tank?

30. The length of a rectangle is 4 times as long as its width. If the width is increased by 5 m and the length is decreased by 5 m, the area of the new rectangle is 80 m2 greater than the area of the original rectangle. Calculate the area of the original rectangle.

ĐỀ SỐ 03

1. Find the value of A:

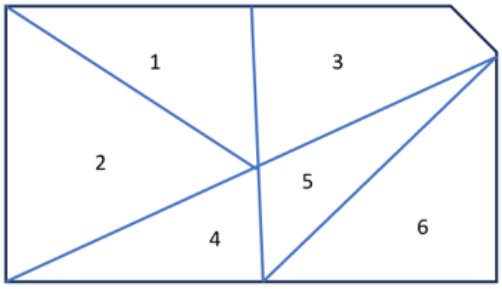
$$\mathbf{A} = \frac{7}{19} \times \frac{8}{11} + \frac{7}{19} \times \frac{3}{11} + \frac{12}{19}$$

A. $\frac{13}{19}$ B. $\frac{13}{27}$ C. $\frac{19}{19}$ D. $\frac{1}{19}$ E. $\frac{13}{3}$

2. There are 3 points A, E and H, three of which are not collinear. How many lines can pass through each 2 points?

A. 1 B. 2 C. 3 D. 4 E. 5

3. How many quadrilaterals are there in the following figure?



A. 5 B. 4 C. 6 D. 8 E. 7

4. In a basket, there are 46 spotted marbles, 15 striped marbles, 48 yellow marbles, 11 blue marbles and 20 white marbles. Which type of marbles has the highest chance to be picked up randomly?

A. Blue ones B. Striped ones C. Yellow ones

D. White ones E. Spotted ones

5. What is the number of digits which are written down when listing numbers from 0 to 30?

A. 30 B. 40 C. 52 D. 60 E. 70

6. Find the area of the shaded parts in square dm, given that the perimeter of the white square is 80 cm anh the rectangle's length is 10 cm longer than its width

A. 44 cm2 B. 42 dm2 C. 43 cm2

D. 38 dm2 E. 36 dm2

7. We have: K = 9999 + 998 + 97 + 6. Find the value of K (no calculator used)

A. 99990 B. 11119 C. 11111 D. 911190 E. 11100

8. The area of a rectangle is 1536 cm2. This rectangle is divided into 6 equivalent squares. Find the perimeter of each square.

A. 64 cm B. 256 cm C. 56 cm D. 44 cm E. 265 cm

9. In a 3-digit number, the digit at tens place is the largest 1-digit number. The digit at the ones place is the smallest even number and the digit at the hundreds place is 2 times as great as the ones place digit. Find the sum of this number and the smallest 2-digit number.

A. 502 B. 520 C. 445 D. 453 E. 435

10. The sum of two numbers is 84. If the first number is multiplied by 3 and the second number stays the same, the new sum becomes 146. Find the original numbers.

A. 32, 52 B. 48, 36 C. 31, 53 D. 45, 39 E. 43, 41

11. Three children wear shirts and shorts of three different colors: green, red and blue. Using the clues below, find out the colors of Chris' shirt and Alex's shorts. Clue: None of them wear shirts and shorts of the same colors. They wear different shirts and shorts from one another. Alex loves green, so he must be wearing something green. Ben hates the color red, so he will not wear anything red. Chris wears blue shorts.

A. Chris' Shirt: red, Alex's shorts: red

B. Chris' shirt: blue, Alex's shorts: red

C. Chris' shirt: green, Alex's shorts: blue

D. Chris' shirt: red, Alex's shorts: green

E. Chris' shirt: green, Alex's shorts: red

12. From the digits 2, 0, 4, 5, how many 4-digit numbers divisible by 5 can be formed?

A. 120 B. 96 C. 200 D. 64 E. 32

13. The distance from Minh's house to Hai's house is 8km 1m. Trees were planted along the road and on both sides. Two consecutive trees are 9m far from each other. Given that a tree is placed right in front of Minh's house, but there're no trees in front of Hai's, find the total number of trees planted along that road.

A. 502 B. 889 C. 1897 D. 1778 E. 1435

14. A woman sells chickens in a market. In the first day, she sold 3/8 the number of chickens. Then, in the next day, she sold 2/5 the number of chickens and the number of chickens left is 18. How many chickens did she sell in each day?

A. 30, 32 B. 25, 41 C. 18, 43 D. 30, 33 E. 40, 35

15. The sum of 2 numbers is the largest 3-distinct digit number. Given that 1/3 of the first number is equal to 1/6 the second number. Find the two numbers.

A. 329, 658 B. 367, 611 C. 1897, 6746 D. 1778, 3785 E. 753, 234

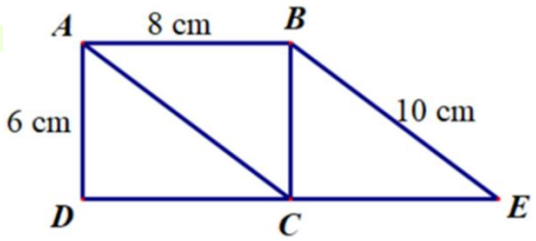
16. There are 65 corns in two bags. If 5 corns are taken from the first bag and put into the second bag, the number of corns in the first bag will be equal to 2/3 the number of corns in the second bag. Find the number of corns in each bag at first.

A. 31, 34 B. 28, 37 C. 20, 45 D. 29, 36 E. 35, 30

17. How many 4 distinct-digit numbers can be formed such that digit 8 is placed right after digit 6?

A. 76 B. 154 C. 131 D. 293 E. 85

18. In the figure below, how much longer is the perimeter of quadrilateral ABEC than the perimeter of rectangle ABCD, given that AC = BE?



A. 8 cm B. 28 cm C. 36 cm D. 40 cm E. 35 cm

19. A book has 111 pages. How many times is digit 4 used to number the book pages?

A. 8 B. 28 C. 36 D. 21 E. 35

20. A chicken had 20 nuts. He ate a nut every day and ate the twelfth nut on Wednesday. On which day did he start to eat the nuts?

A. Wednesday B. Thursday C. Friday

D. Saturday E. Sunday

21. How many ways are there for mummy to distribute 3 books to her 3 kids?

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

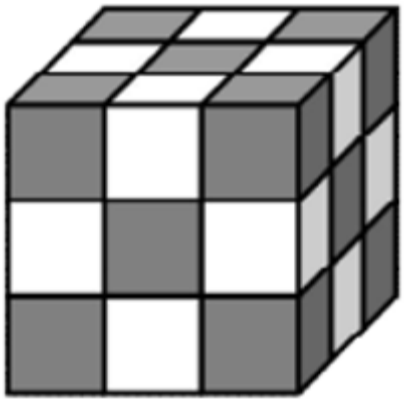
22. There are 170 toy dinosaurs, and they need to be arranged into boxes such that 12 toy dinosaurs are in a box. At least how many boxes are needed to arrange all the toy dinosaurs?

A. 12 B. 15 C. 16 D. 13 E. 14

23. Find a number, given that when this number is multiplied by 5, we get a result. After this result is added to 32, we get 77.

A. 5 B. 7 C. 9 D. 10 E. 21

24. Nick built a cube using small gray and white cubes (see the figure). The cubes with the same color do not have a common face. Which statement describes the number of used cubes?



A. one gray cube more than white cubes
B. one white cube more than gray cubes
C. the same number of gray and white cubes
D. two white cubes more than gray cubes
E. two gray cubes more than white cubes

25. A parallelogram has the perimeter of 98cm. If the length of AB is 14cm shortened and the length of AD becomes 7cm longer, we have rhombus AEGH (as in the figure). Find the length of sides of the parallelogram and the rhombus.

26. An puts marbles into a box with the order of colors as green, red and yellow, then green, red and yellow…until all the marbles are arranged in the box. a)What color is the 100th marble in the box?

b)If An wants to have 10 red marbles, at least how many marbles does she need to put into the box?

27. Two men work on a task in 12 hours to complete it. If the first man works on his own on 2/3 the task, it takes him 10 hours to do it. How long does it take the other man to complete the other 1/3 of the task?

28. Two boxes have 24 cookies. If Hoa takes 5 cookies from the first box to the second box and 2 cookies from the second box to the first box, the number of cookies in the first box equals 5/7 of the second box. How many cookies are there in each box originally?

29. There are two numbers: 3/5 of the smaller number equals 1/15 of the larger number. Besides, the larger number is a 3-digit number with the number at hundreds place is 4. If the hundreds place digit is removed, we get the smaller number. Find these two numbers.

30. There are 4 small trucks transporting rice. The first truck carries 40 quintals. The second one carries 45 quintals. The third one carries 44 quintals. The fourth one carries 3 quintals fewer than average of the other three trucks.

a) How many quintals of rice does the fourth truck carry?

b) How many quintals do all the trucks carry?

ĐỀ SỐ 04

1. Given a rhombus ABCD in which AC is 24 cm long and the diagonal BD is two third the length of AC. What is the area in cm2 of the rhombus ABCD?

A. 348 B. 192 C. 129 D. 384

2. A company has 68 employees. The same number of employees work on each shift. How many shifts could the company have?

A. 15 B. 17 C. 19 D. 21

3. What is the total number of digits used to write down the first 60 natural numbers?

A. 60 B. 111 C. 110 D. 112 E. 120

4. A square with area of 36 cm2 is separated into two identical rectangles. What is the perimeter of each rectangle?

A. 16 cm B. 18 cm C. 20 cm D. 22 cm

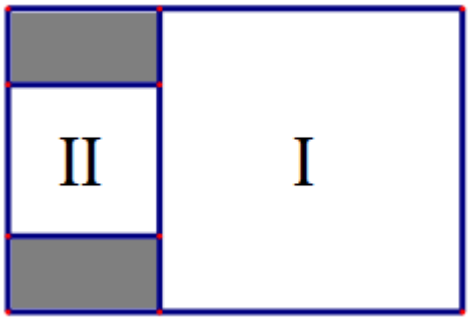
5. The digit at the tens place of a 2-digit number is twice the digit at the units place. If the sum of this number and the number formed by reversing the digits is 66, what is the value of this 2-digit number?

A. 21 B. 42 C. 63 D. 12

6. A new arithmetic operation "@" is such that 6@3=218, 8@4=232 and 9@3=327. What is the value of 10@2?

A. 125 B. 205 C. 250 D. 520 E. 525

7. Two squares are placed inside a larger rectangle as shown in the figure. The areas of the two squares are 36 cm2 and 9 cm2 respectively. What is the sum of area of the shaded region in cm2?

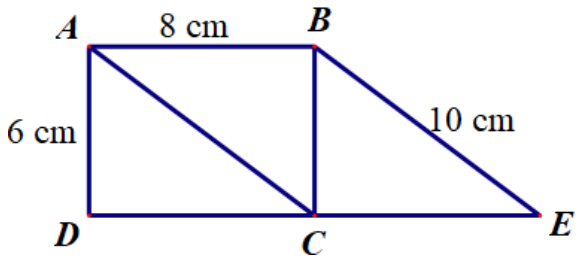


A. 3 B. 6 C. 9 D. 12 E. 18

8. Jenny bought 4 books in a bookstore. The prices of the first 3 books were $10, $15 and $25. The average price she paid for the 4 books was $18 per book. How much did she pay for the 4th book?

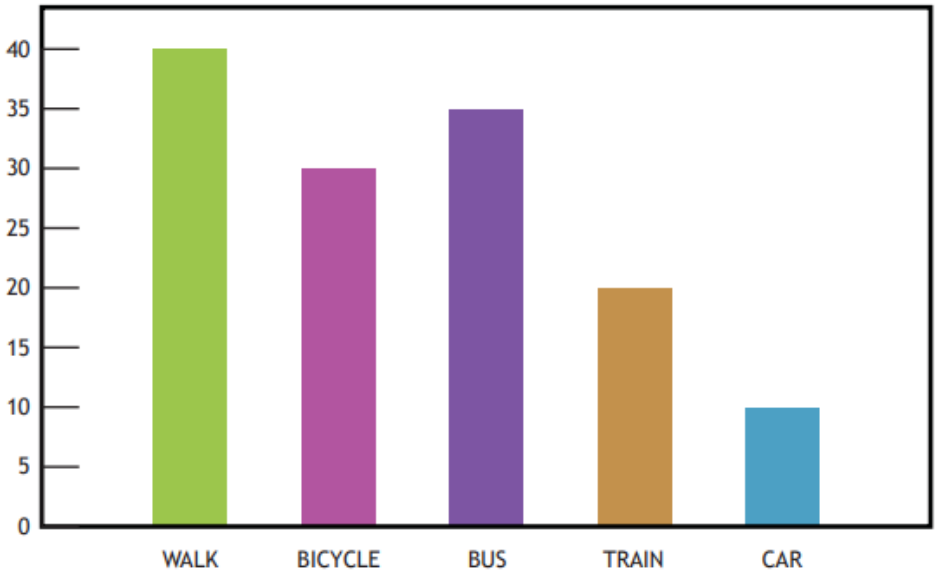
A. $20 B. $22 C. $24 D. $23

9. In the figure below, how much longer is the perimeter of ABEC than the perimeter of rectangle ABCD? Given that AC = BE.



A. 8 cm B. 28 cm C. 36 cm D. 40 cm

10. A group of students at Parkside Elementary School made a bar graph to show how they get to school.



How many more students take the bus to school than take the train?

A. 10 students B. 5 students C. 15 students D. 20 students

11. If 01/08/2019 is Thursday, which day of the week will be 01/08/2020?

August 2019						
SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

A. Friday B. Wednesday C. Tuesday D. Saturday

12. What is the sum of all possible values of A?

$$\begin{array}{r} AB \\ AB \\ \hline CA \\ \hline \end{array} \; +$$

A. 2 B. 4 C. 6 D. 12

13. A bag of flour weighed 1800g. A baker used 1/3 of the flour. Then he used 2/3 of the remaining. How many grams of flour were left then?

A. 400g B. 800g C. 300g D. 120g E. 180g

14. Given a sequence of numbers in which the difference between any two consecutive numbers always keeps the same. The third number in this sequence is 75 and the 6th term is 96. What is the first number in this sequence?

A. 61 B. 54 C. 75 D. 7

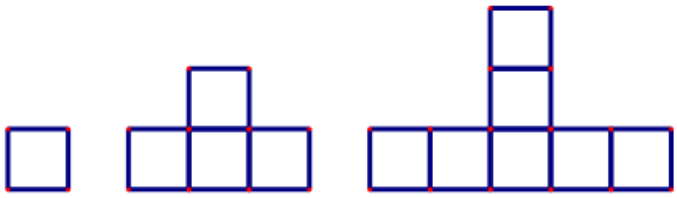
15. At the fabric shop, I bought 120 meters of yellow fabric and 55 meters of green fabric. I have used 17 meters of yellow and 13 meters of green fabric yesterday. How many meters of fabric do I have left?

A. 103 meters B. 42 meters C. 145 meters D. 100 meters

16. In a class of 40 students, 8 are in the drama club and 12 are in the art club. If a student is selected at random, what is the fraction presenting the chance that the selected student is in the drama club?

A. $\frac{1}{5}$ B. $\frac{3}{10}$ C. $\frac{2}{3}$ D. $\frac{2}{5}$

17. Squares are used to build the following sequence of figures. If the side length of each square is 1 cm, what is the perimeter of the 8th figure in the sequence?



A. 47 B. 50 C. 58 D. 46

18. Anna separates a square with side length of 9 cm into two smaller rectangles. If the difference in perimeter of the two rectangles is 6 cm, what is the area of the bigger rectangle?

A. 27 cm2 B. 54 cm2 C. 36cm2 D. 45 cm2

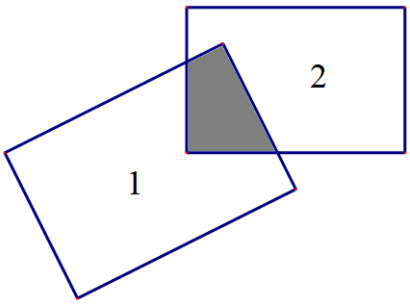
19. A bag contains beads of two colors, 13 blacks and 17 whites. What is the minimum number of beads that must be drawn from the bag without looking in order to guarantee that one has drawn two beads of the same color?

A. 18 B. 14 C. 3 D. 5

20. There are 20 male students and 15 female students in your class. The teacher wants to appoint one person to be in charge of attendance. What is the fraction representing the chance that this person will be female?

A. $\frac{3}{4}$ B. $\frac{4}{7}$ C. $\frac{15}{35}$ D. $\frac{1}{7}$

21. The diagram below shows two overlapping rectangles consisting of the shaded region and two others region which is marked 1 and 2. The area of the bigger rectangle is 6 times the area of the shaded region. The total area of the figure is 10 times the area of the shaded region and the region 2 has area of 24 cm2. What is the area, in cm2, of the shaded region?



A. 3 B. 4 C. 5 D. 6 E. 8

22. How many 3-digit numbers with distinct digits can be formed from 5 digits 1, 2, 3, 4, 5?

A. 30 B. 60 C. 45 D. 75

23. There are 45 questions in an exam. For every correct answer, 5 marks is awarded. For each wrong answer, 3 marks is deducted. Mellissa scored 185 marks. How many correct answers did she give?

A. 37 B. 38 C. 39 D. 40

24. John walks toward a park from his house at the speed of 20 meters per minute. 5 minutes later, his sister Casey returns from the park at the speed of 10 meters per minute. How long after John started walking do they meet if the park is 1 kilometer far away from his house?

A. 30 B. 35 C. 40 D. 45

25. Calculate: $\frac{1}{2}+\frac{1}{4}+\frac{1}{8}+\frac{1}{16}+\frac{1}{32}+\frac{1}{64}+\frac{1}{128}$

26. Two students are computing A x B[/i]. The first student mistakenly took the last digit of A as 8 instead of 5 and got a product of 306. The second student mistakenly the tens digit of A as 4 instead of 1 and got product of 765. What is the value of B?

27. Lena, her mother Catherine, and her grandmother Anna have age in total of 120 years old. Given that Lena's days old equals her mother's weeks old and Lena's months old equals her grandmother's years old. How old is Anna now?

28. Pipes A and B can fill a tank in 3 and 4 hours respectively. Pipe C can empty it in 12 hours. If all the three pipes are opened together, how long will a empty tank be filled?

29. Given a fraction and the following information: i. If 36 is added into the numerator, the fraction becomes 1. ii. If 2 is added into the denominator and the numerator is subtracted by the same amount, the obtained fraction has the simplest form of . What is the original fraction?

30. Alex wrote a 4-digit number on a piece of paper and asked Bob to guess it. Bob asked: "Is the number 2831?" Alex replied: "Two of the digits are correct. The positions of those digits are also correct." Bob asked again: "Is the number 7195?" Alex replied: "Two of the digits are correct. The positions of those digits are all wrong." Bob asked again: "Is the number 9723?" Alex said: "All the digits are correct. The positions of those digits are all wrong." Given all the digits in that 4-digit number are all different, what is the number written by Alex?