

**绝密★启用前****6 升 7 插班测试卷 (英文数学)**

试题整理：新航道国际备考教研中心

(满分 100 分，考试时间 80mins)

姓名： \_\_\_\_\_

分数： \_\_\_\_\_

注意事项：

1. 答题时，考生务必在相应位置写好自己的姓名；
2. 答题时，必须在答题卷上写出相应的计算步骤或主要步骤。

**Part I (multiple choice)**

| 评卷人 | 得分 |
|-----|----|
|     |    |

1. The change, in yards, in a football team's position on the field for each of their last four plays is shown below.  $-4, 7, -7, 0$ . Which list correctly compares the changes, in yards, in the football team's position on the field?

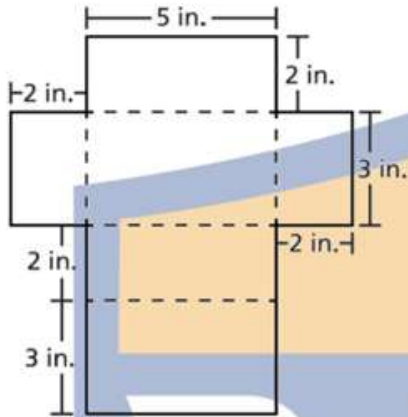
- A.  $-7 < -4 < 0 < 7$   
B.  $-4 < -7 < 0 < 7$   
C.  $0 < -7 < -4 < 7$   
D.  $0 < -4 < -7 < 7$

2. Which of the following fractions is closest to 0?

- A.  $\frac{5}{12}$    B.  $\frac{2}{3}$    C.  $\frac{5}{6}$    D.  $\frac{3}{4}$

3. When \$0.000315\$ is multiplied by \$7,928,564\$ the product is closest to which of the following?  
 A. 210    B. 240    C. 2100    D. 2400    E. 24000

4. A student draws the net below to show the dimensions of a container that is shaped like a right rectangular prism.



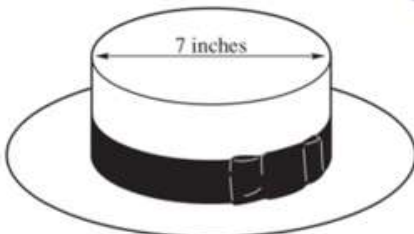
What is the surface area, in square inches, of the container?

- A 19    B 30    C 38    D 62

5. Gilda has a bag of marbles. She gives 20% of them to her friend Pedro. Then Gilda gives 10% of what is left to another friend, Ebony. Finally, Gilda gives 25% of what is now left in the bag to her brother Jimmy. What percentage of her original bag of marbles does Gilda have left for herself?

- A 20    B 54    C 38    D 45

6. The top part of this hat is shaped like a cylinder with a diameter of 7 inches,



Which measure is closest to the length of the band that goes around the outside of the hat?

- A 10.1 inches    B 11.0 inches    C 22.0 inches    D 38.5 inches

7. Malcolm wants to visit Isabella after school today and knows the street where she lives but doesn't know her house number. She tells him, "My house number has two digits, and exactly three

of the following four statements about it are true."

- (1) It is prime.
- (2) It is even.
- (3) It is divisible by 7.
- (4) One of its digits is 9.

This information allows Malcolm to determine Isabella's house number. What is its units digit?

- A. 4    B. 6    C. 7    D. 8    E. 9

8. Angles F and G are complementary angles. Angles G and H are supplementary angles. The degree measure of each angle is a whole number. What is the smallest possible measure of angle H?

- A.  $1^\circ$     B.  $89^\circ$     C.  $91^\circ$     D.  $179^\circ$

**Part II (Fill in the blanks)**

|     |    |
|-----|----|
| 评卷人 | 得分 |
|     |    |

- 9. What is the sum of the distinct prime integer divisors of 2016? \_\_\_\_\_
- 10. Suppose that  $a * b$  means  $3a - b$ . What is the value of  $x$  if  $2 * (5 * X) = 1$ ? \_\_\_\_\_
- 11. Shauna takes five tests, each worth a maximum of 100 points. Her scores on the first three tests are 76, 94, and 87. In order to average 81 for all five tests, what is the lowest score she could earn on one of the other two tests? \_\_\_\_\_
- 12. The algebraic expression  $6x^2 + 9x + 3$  represents the area of a rectangle. What is the area of the rectangle when  $x = 3$  feet? \_\_\_\_\_
- 13. Sara is buying items at a store. Her total comes to \$45. She uses all of the money that is still on a gift card to pay for part of the total. She pays the remaining \$36 with cash. Which percentage best describes the part of the total that Sara paid for with the gift card? \_\_\_\_\_

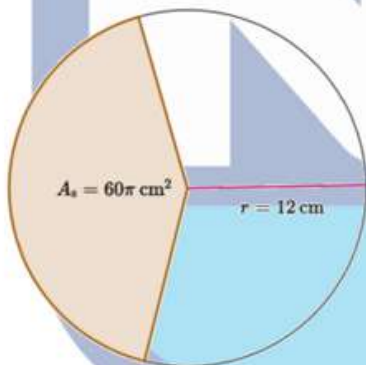
14. Buses from two different bus routes each stop at the same corner at 9 A.M. Buses from one route stop at that corner every 9 minutes. Buses from the other route stop there every 12 minutes. What is the fewest number of minutes that will pass until the next time buses from both routes are at that corner at the same time? \_\_\_\_\_

15. The least common multiple of a and b is 12, and the least common multiple of b and c is 15. What is the least possible value of the least common multiple of a and c? \_\_\_\_\_

Part III (Questions that require solutions)

|     |    |
|-----|----|
| 评卷人 | 得分 |
|     |    |

16. (6 marks) A sector with a radius of 12 cm has an area of  $60\pi \text{ cm}^2$ .



What is the central angle measure of the sector?

17. (5 marks) An art teacher has a total of  $\frac{7}{8}$  pound of clay. The teacher puts  $\frac{1}{16}$  pound of clay at each work station. The teacher sets up an equal number of work stations in each of 2 classrooms. How many work stations does the teacher set up in each of the classrooms?

*Show your work.*

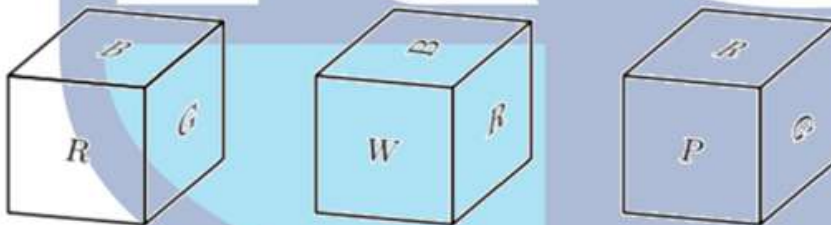
18. (6 marks) Tom wants to order tickets online so that he and three of his friends can go together to a water park. The cost of the tickets is \$16.00 per person. There is also a \$2.50 one-time service fee for ordering tickets online. Write an expression in terms of  $n$  that represents the cost of ordering  $n$  tickets online.

**Expression:**

Use your expression to find the total cost for ordering 4 tickets online.

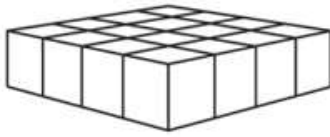
**Show your work.**

19. (5 marks) The faces of a cube are painted in six different colors: red(R), white(W), green(G), brown(B), aqua(A), and purple(P). Three views of the cube are shown below. What is the color of the face opposite the aqua face?



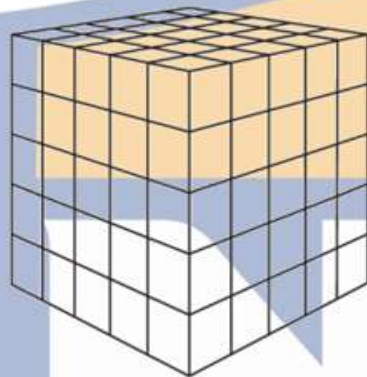
20. (6 marks) Kyle has a pile of cube-shaped blocks that measure 1 inch on each side.

A. He arranged some of the blocks to create the figure shown.



Using an exponent greater than 1, write an expression whose value is equal to the number of blocks Kyle used to create the figure shown above.(3marks)

B. He arranged another set of blocks to create the figure below.



Using an exponent greater than 1, write an expression whose value is equal to the number of blocks Kyle used to create this figure.(3marks)

21. (10marks) The Romans used these capital letters:

|          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|
| <b>I</b> | <b>V</b> | <b>X</b> | <b>L</b> | <b>C</b> | <b>D</b> | <b>M</b> |
| 1        | 5        | 10       | 50       | 100      | 500      | 1000     |

These letters put together to form all the numbers, like this:

|               |                |                 |               |              |
|---------------|----------------|-----------------|---------------|--------------|
| <b>I = 1</b>  | <b>II = 2</b>  | <b>III = 3</b>  | <b>IV = 4</b> | <b>V = 5</b> |
| <b>VI = 6</b> | <b>VII = 7</b> | <b>VIII = 8</b> | <b>IX = 9</b> |              |

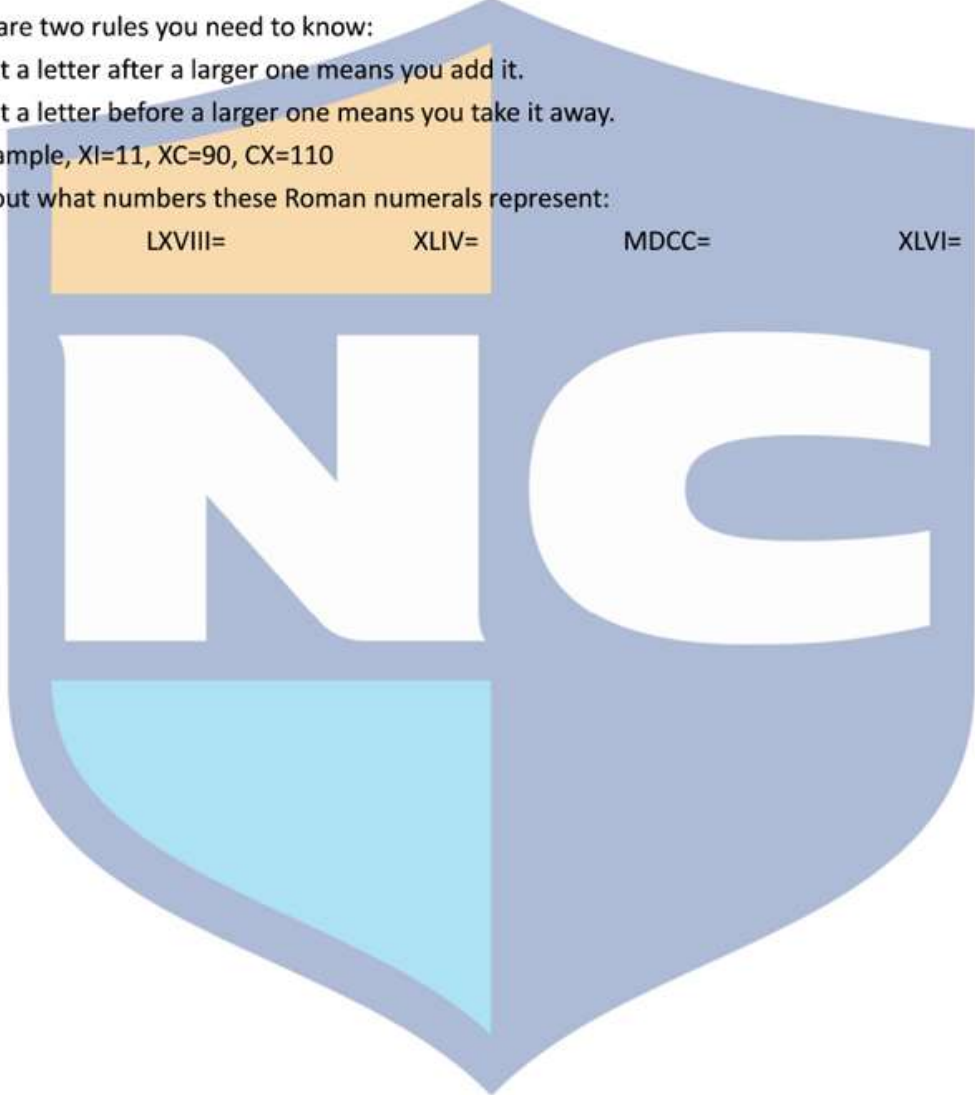
There are two rules you need to know:

- a) Put a letter after a larger one means you add it.
- b) Put a letter before a larger one means you take it away.

For example, XI=11, XC=90, CX=110

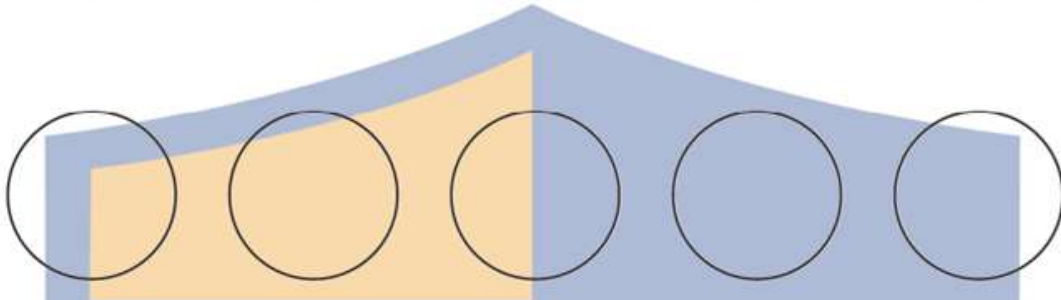
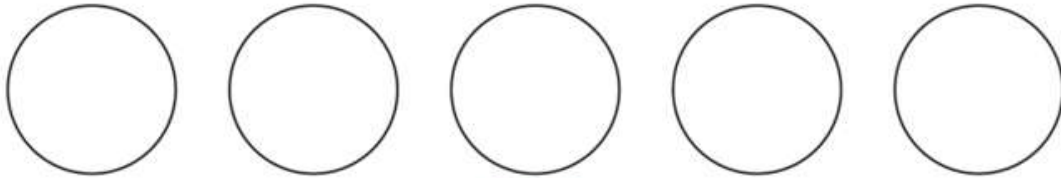
Work out what numbers these Roman numerals represent:

XCIX=                      LXVIII=                      XLIV=                      MDCC=                      XLVI=



22. (10 marks) Carl has 200 coins in a jar. Nickels make up 10% of the coins in the jar, and pennies make up 60% of the coins in the jar. All the coins in the jar are pennies, nickels, or dimes.

A. Inside each circle below, write 5¢ for nickel, 1¢ for penny, or 10¢ for dime so that the percentages of the pennies, nickels, and dimes match the percentages of pennies, nickels, and dimes in Carl's entire jar.(3marks)



B. What is the ratio of dimes to pennies?(3marks)

C. Carl adds 50 quarters to his jar. What effect does this have on the ratio of dimes to pennies? Explain your answer.(4marks)