次の文章を読んで、後の問題に答えなさい。

Ⅱ

次の文章を読んで、後の問題に答えなさい。

① ぼくの経験するところによれば、今の小説の読者ということのは、たいていはその小説の筋を読んでいる。その次には、その小説の中に描かれた生活に懐摂を持っている。持ちがしないことはない。２現にぼくの知っているある人は随分経済的に苦しい暮らしをしている。これには時々不思議な気持ちはない。③ これの三つの心持ちは、同時にぼく自身の生活に近い生活を書いた小説は全然興味を持っていない。それからぼく自身の生活に近い小説を愛読していることとは勿論である。ぼくが（読者として）世間の小説の読者と違いしているとするならば、ぼくの筋の面白さとか、ぼく自身の生活に遠いこととか、あるいはぼく自身の生活に近いこととか、いうことも勿論、幾分か影響しているだろう。しかし、それらの影響のほかにまだ何かがあることを信じ
問題二
傍線部「第二」の読者を説明している部分を「①読者」に続く形で、文中より二十字以内で抜き出しなさい。

問題三
問題文中に次の文章を補うとすると、どこが適当か。文中の①②から選び、記号で答えなさい。

ぼくはこれらを通しもし悪いこととは思ってない。

問題四
次のア－タのうち、問題文の内容に合っているものを二つ選び、記号で答えなさい。

ア、貧しい人は豊かな生活を描いた小説を好む。

イ、ぼくは小説を読んでいると不思議な気持ちになる。

ウ、感銘の深い小説は違った生活を描いた小説である。

オ、小説の評価は感銘の深さによるものである。

カ、読者自身に近い小説は一般的に好きではない。

キ、ぼくは芸術的知識階級に属すことがよいことである。

久、読書階級に属すことがよいことである。
2013
Mathematics Entrance Examination

数学科験問題

Applicant Number 受検番号

Name (Print)  

氏名(Name in Kanji, if applicable)

- Put only your applicant identification card, pencils, mechanical pencils, and erasers on the desk. Rulers and calculators are not allowed.
  受検票、鉛筆、シャープペンシル、消しゴム以外の私物は机に置かないこと。定規、電卓は使用できない。

- Do not open this booklet until the proctor says, “begin.”
  「始め」の合図があるまで、この問題冊子を開かないこと。

- All answers must be written in the designated columns on the answer sheet.
  解答は、全て解答用紙の指定された解答欄に記入すること。

- You may use blank spaces in this booklet for your work.
  この問題冊子の余白を計算等に使用してよい。

- Both this booklet and the answer sheet will be collected.
  この問題冊子と、解答用紙をともに回収する。

- This booklet consists of 8 pages plus the cover.
  この問題冊子は表紙を除いて、8 ページである。

Keio Academy of New York
慶應義塾ニューヨーク学院
1. Simplify.

簡単にせよ。

(1) \[ \frac{5}{3}(a-2b)+\frac{ab}{4}\div\frac{a}{2} \]

(2) \[ \frac{(2a)^2+2b}{2} - \frac{3a^2+3b}{3} \]

(3) \[ a^3-(-ab)^2\times\left\{\frac{b}{(-2a)^2}\right\}^3 \times \frac{3a^7}{(b^3)^3} \]

(4) \[ (-\frac{4a^3}{5})^2 \times (-3a) \times \frac{a^2}{0.3} \div \frac{1}{a^3} \]
2. Solve for $x$.

次の等式が成り立つような $x$ の値を求めよ。

(1) $\frac{2}{3}(-7x + 15) = \frac{3}{2}x + 5$

(2) $\frac{3-x}{-2} - \frac{0.5x + 2}{0.2} = -3x$
3. (1) Solve the following system of equations.
次の連立方程式を解け。

\[
\begin{align*}
-\frac{7}{5}(1.5-x) &= 7y \\
3y - \frac{4x-1}{2} &= -0.2
\end{align*}
\]

(2) Among two digit integers, there is only one pair of numbers such that both of these two numbers have the same digits but in a different order, the sum of the smaller number and twice the larger number is 261, and the sum of all their digits is 30. Find these two numbers.
2桁（けた）の整数の中に次のような2つの数が1組だけある。これらの2つの数の各位に使われている数字の組は同じだが順序が異なっており、小さいほうの数に、大きいほうの数の2倍を加えると261になる。また、2つの数の各位に使われている数字を全て加えると30になる。このような2つの数を求めよ。
4. (1) Suppose that the square of the sum of two numbers is equal to the sum of the square of each number. At least one of the two numbers must be _______. Fill in the blank with the appropriate number and write it on the answer sheet.
二つの数の和の平方と、各々の数の平方の和が等しくなるのは、少なくともひとつの数が _______のときである。この空欄に適する数を解答欄に記入せよ。

(2) Suppose that there are two numbers such that the sum of the two numbers is 15 and the sum of the square of each number is 150. Find the product of the two numbers.
二つの数の和が 15、各々の数の平方の和が 150 である。このときこの二つの数の積を求めよ。
5. How many points \((x, y)\) are there that satisfy each condition below when both \(x\) and \(y\) are integers?

\(x\) と \(y\) はともに整数とするとき、次のような点 \((x, y)\) はそれぞれいくつあるか。ただし、記号 \(\leq\) は記号 \(\leq\) と同じことを意味する。

(1) \(-1 \leq x \leq 3 \quad \text{and} \quad -2 \leq y \leq 1\)

(2) \(-1 < x < 3 \quad \text{and} \quad -2 \leq y \leq 1\)

(3) \(-2 \leq x \leq y \leq 1\)

(4) \(-2 \leq x < y \leq 1\)
6. There are four points \( A(0, 0), B(a, 0), C(a, a) \) and \( D(0, a) \) on a plane where \( a \) is a positive number, and point \( P(x, y) \) is inside the square \( ABCD \). Suppose that the area of the square \( ABPD \) is \( \frac{2}{3}a^2 \). Express a relationship between \( x \) and \( y \) in terms of \( a \) and write it in column \( 1 \) on the answer sheet. Also, graph the relationship in column \( 2 \) on the answer sheet. Write the coordinates of the points at which the graph meets with \( x \)-axis and with \( y \)-axis.

\( a \) は正の数とする。平面上に四点 \( A(0, 0), B(a, 0), C(a, a), D(0, a) \) があり、点 \( P(x, y) \) が、正方形 \( ABCD \) の内部にある。四角形 \( ABPD \) の面積が \( \frac{2}{3}a^2 \) であるとき \( x \) と \( y \) の間に成り立つ関係を \( x, y, a \) を用いて表し答案用紙の\( 1 \)に記入せよ。また、この関係を表すグラフを答案用紙の\( 2 \)に記入せよ。このグラフが \( x \) 軸、 \( y \) 軸と交わる点の座標も記入すること。
7. (1) There are two numbers, \(x\) and \(y\). The average of these numbers is \(a\). The product of these two numbers is \(b\). Express the average of the reciprocals of \(x\) and \(y\) in terms of \(a\) and \(b\).

二つの数 \(x\) と \(y\) があり、それらの平均は \(a\)、また、それらの積は \(b\) である。これら \(x\) と \(y\) の逆数の平均を \(a\) と \(b\) を用いて表せ。

(2) There are eight different numbers. The average of the two smallest numbers is \(k\), the average of the three smallest numbers is \(k + 1\), the average of the four smallest numbers is \(k + 2\), the average of the five smallest numbers is \(k + 3\), the average of the six smallest numbers is \(k + 4\), the average of the seven smallest numbers is \(k + 5\), and the average of all eight numbers is \(k + 6\). Express the largest number of these eight numbers in terms of \(k\). Also, express the average of the smallest number, the second smallest number, and the sixth smallest number in terms of \(k\).

8 個の異なる数があり、最も小さい 2 個の数の平均は \(k\)、最も小さい 3 個の数の平均は \(k + 1\)、最も小さい 4 個の数の平均は \(k + 2\)、最も小さい 5 個の数の平均は \(k + 3\)、最も小さい 6 個の数の平均は \(k + 4\)、最も小さい 7 個の数の平均は \(k + 5\)、8 個の数全ての平均は \(k + 6\) であるという。これらの 8 個の数のうち最大の数を \(k\) を用いて表せ。また、最も小さい数と二番目に小さい数と六番目に小さい数の平均を \(k\) を用いて表せ。
A circle with the center at the origin O \((0, 0)\) has the radius of length \(r\). Peter and Sara are at \(A(r, 0)\) at the beginning. The two depart from point A at the same time and walk on the circle at the same speed. Peter walks counterclockwise and Sara walks clockwise at a constant speed such that after one minute from the time of their departure, Peter passes point P on the circle and Sara passes point S on the circle where \(\angle AOP = 32^\circ\), \(\angle AOS = 32^\circ\). Suppose that Peter drops a blue ball and Sara drops a red ball every minute on the circle after starting to walk. For example, the first time Peter drops a blue ball is when he is at point P, and the first time Sara drops a red ball is when she is at point S. After how many minutes will both drop their balls at the same time at the same point for the first time? Write your answer in column ① on the answer sheet. Also, mark the point in the figure in column ② on the answer sheet.

半径が \(r\) の円があり、その中心は原点 \(O(0, 0)\) にあるとする。最初、ピーター君とサラさんがともに点 \(A(r, 0)\) の位置にいる。この二人が同時に点 A を出発し、ピーター君は時計の回る向きとは逆に、サラさんは時計の回る向きと同じに、円周上を、出発後 1 分後には \(\angle AOP = 32^\circ\) である円周上の点 P をピーター君が、\(\angle AOS = 32^\circ\) である円周上の点 S をサラさんがちょうど通過するような一定の速度で回る。さて、この二人が回り始めてから 1 分ごとにピーター君は青い玉、サラさんが赤い玉を円周上に落とすとする。たとえば、ピーター君が最初に青い玉を落とすのは彼が点 P に来たとき、サラさんが最初に赤い玉を落とすのは彼女が点 S に来たときである。二人が最初に同時に同じ位置でそれぞれの色の玉を落とすのは出発後何分後か。答案用紙の①に答えを記入せよ。また、その位置を答案用紙の②の図の上に記せ。
English Entrance Exam 2013

Directions:

- Do not open this booklet until the test begins.
- Both the test booklet and answer sheet will be collected at the end of the test.
- Write on the answer sheet only except for Part 3.

Keio Academy of New York
Part 1: Grammar

Directions: For questions 1-13, choose the word or group of words that will complete each of the following sentences correctly. Fill in the bubble next to the letter of the correct answer on your answer sheet.

1. ________ person has the right to freedom.
   a) All                b) Several                c) Some                d) Every

2. My mother always ____________ while doing housework.
   a) singing              b) sung                 c) will sing            d) sings

3. Young people tend to be interested ______ new technology.
   a) in                  b) at                       c) toward               d) of

4. Mr. Taxi Driver, please drive _______. I’m in a hurry.
   a) fastest                b) fastly              c) fast                  d) more faster

5. The ________ been nice lately.
   a) weather will           b) weather               c) weather have         d) weather has

6. The harder they practiced, ____________.
   a) the better they got     b) the well they got  c) the more better they got   d) the better they getting

7. After she ________, she’ll start studying.
   a) ate                     b) will have eaten    c) will be eating        d) has eaten

8. By the time John visits Mexico, he ____________ studying Spanish for two years.
   a) will has been          b) will have been     c) is                    d) will be

9. Do you like ____________?
   a) apples                 b) apple                c) an apple             d) eat apples

10. Jane is the woman _______ we met at the party last night.
    a) which                  b) when                   c) to her               d) whom

11. The police officer asked _______ show him my driver’s license.
    a) to                         b) me to               c) me                   d) to me

12. Their family doctor recommended that they not eat _______ sugar.
    a) many                      b) much                 c) a lot               d) a few

    a) of traveling          b) traveling             c) to travel            d) to dreamed to
Directions: For questions 14-17, choose the letter for the word or words that must be changed to make the sentence correct. Fill in the bubble next to the letter of the correct answer on your answer sheet.

14. **During** the night there **is** two dogs at the warehouse to **guard against** robbery.
   a) b) c) d) 

15. Although one **likes to think** of **yourself** as a kind person, one can always try harder.
   a) b) c) d) 

16. In most western countries, the **use of** plastics **is greater than** steel, aluminum, and copper.
   a) b) c) d) 

17. **The average age of college students has risen** quite noticeable over the past 25 years.
   a) b) c) d)
Part 2: Reading comprehension

Directions: For questions 18 to 32, read each selection that follows, then answer the questions. Fill in the bubble next to the letter of the correct answer on your answer sheet.

Passage A:

Did you know that there are more than 2,000 types of frogs? Some live on or near water all the time. Others inhabit land. They live there most of their lives.

Biologists have found that one thing is the same about all frogs. Each begins as a tadpole. The tadpole is one stage in a frog’s development. It follows the egg stage.

A tadpole’s body goes through slow, gradual changes as it grows. First, the tail gets longer. Then the tadpole can swim. It darts around the water, moving quickly to find food.

Soon, the tadpole’s body grows legs. At this point, it can breathe on land. The gills are replaced by lungs. Then the last change for the tadpole has to do with its tail. When it first hatches, the tail is the longest part of its body. Over time, the tail gets shorter and shorter. Soon, the tail is gone and the animal becomes a frog.

18. The word inhabit means ____________.
   a) jump to
   b) live
   c) know
   d) eat

19. The word gradual means ____________.
   a) sudden, fast
   b) never ending
   c) small
   d) beautiful

20. According to the passage, frogs ____________.
   a) start to swim after it grows its legs.
   b) grow only near food.
   c) always start with being a tadpole.
   d) have both lungs and gills.

21. The word there in line 2 refers to ____________.
   a) land
   b) underwater
   c) water
   d) tail

22. The passage is mainly about ________________.
   a) “How a tadpole changes into a frog.”
   b) “How tadpoles grow legs.”
   c) “Where tadpoles mostly live.”
   d) “How tadpoles get food.”
Passage B:

Have you ever heard someone use the phrase “once in a blue moon?” People use this expression to describe something that they do not do very often. For example, someone might say that he tries to avoid eating sweets because they are unhealthy, but will eat chocolate “once in a blue moon.”

While many people use this phrase, not everyone knows the meaning behind it. The first thing to know is that the moon itself is never actually blue. This is just an expression. The phrase “blue moon” actually has to do with the shape of the moon, not the color.

We associate certain names with certain shapes of the moon. For example, when we can see a small part of the moon, it is called a crescent moon. A crescent is a shape that looks like the tip of a fingernail. When we cannot see the moon at all, it is called a new moon. When we can see the entire moon, it is called a full moon. Usually, there is only one full moon every month. Occasionally, there will be two full moons in one month. When this happens, the second full moon is called a “blue moon.”

Over the next 20 years, there will only be 15 blue moons. As you can see, a blue moon is a very rare event. This fact has led people to use the expression “once in a blue moon” to describe other very rare events in their lives.

23. A crescent (line 10) looks like ____________.
   a) the letter “C”
   b) the letter “W”
   c) a moon
   d) new

24. When does a blue moon happen in nature?
   a) When there are two full moons in one month.
   b) When the moon has a blue color.
   c) When we cannot see the moon at all.
   d) When we can only see a small part of the moon.

25. Which of the following would be a good example of “once in a blue moon”?
   a) Mary likes to go to the mountains every weekend. She goes to the mountains once in a blue moon.
   b) Tom rarely remembers to take out the trash. He takes out the trash once in a blue moon.
   c) Cindy hates to wash the dishes. But, she does it every day. She washes the dishes once in a blue moon.
   d) Ming sometimes forgets his homework. He forgets to do his homework once in a blue moon.

26. The passage does NOT mention ____________.
   a) why people use this expression
   b) the types of moon there are in one month
   c) the shape of a crescent moon
   d) what kinds of people use this expression
27. In the final paragraph the author writes, "As you can see, a blue moon is a very rare event." The purpose of this statement is to ___________.
   a) answer an earlier question
   b) provide an example
   c) support an upcoming conclusion
   d) challenge a previous statement

Reading Selection C:
   It is easy to cook food over a campfire. You can put hot dogs on sticks and hold them in the fire. The fire will cook the meat. For dessert, you can roast marshmallows on sticks. Hold them near the fire until they turn golden and begin to melt. But do not leave anything in the fire too long, or it will turn completely black and taste terrible. There are many nice things about campfire meals. To make these meals, you do not even need to know anything about cooking.
   Some people also say that food tastes better when cooked and eaten outside. But the best part of these campfire meals is there are no dishes to wash afterwards.

28. The word completely means ________.
   a) totally, whole
   b) a part of
   c) partially
   d) only

29. According to the passage, _____________.
   a) you can make healthy, delicious food over a campfire quickly
   b) you have to study about cooking at a camp before you cook
   c) cooking over a campfire is nice because it is cooked and eaten outside
   d) the best part of camping is the food

30. What will happen when you leave the marshmallows in the fire too long?
   a) It will taste terrible because it will melt.
   b) It will taste terrible because it will burn.
   c) It is great because you don’t have to do the dishes.
   d) It will taste great because you are eating it outdoors.

31. What does the author NOT say about cooking over a campfire?
   a) You must sing a song and have fun while cooking.
   b) It is easy because the steps are very simple.
   c) You don’t have to wash the dishes.
   d) Food tastes better when cooked outside.

32. If you choose a title of this passage, it would be _____________.
   a) “Dangers of campfires”
   b) “The joy of campfire cooking”
   c) “Where to go camping in Japan”
   d) “How to cook a hot dog on a stick”
Part 3: Writing

Directions: On a separate sheet, write an essay. Before you write, take a minute to think deeply about the topic. You may use the space below to plan your essay. Start writing your essay on the lined paper. When you are finished, make sure to check your spelling and grammar.

Essay Topic: Discuss a place you would like to visit. Give reasons why you want to go there.