

2022年度  
入学試験問題集

2022  
Admission Test Questions

## 学力評価試験（数学、英語）における出題について

### 【数学】

設問は、計算問題を中心に基礎的な理解を求める問題を幅広い分野から出題します。問題は教科書の例題や練習問題にあるような基本事項を問う出題が多くなっています。正確な計算力と計算過程をきちんと書く習慣をつけておくことが必要です。

### 【英語】

設問は、中学校で学習する内容を、対話、長文などの形式で、文法や読解（内容理解）に関する問題など幅広く出題します。学校での学習を確実に身につけておくことが重要です。

※本冊子は、2022年度入学試験問題の一部を掲載したものです。

2022年4月

国際高等専門学校 入試センター

## Content of the academic ability evaluation (mathematics and English)

### [Mathematics]

Questions will be asked from a wide range of fields, focusing on calculation problems and requiring basic understanding. Many of the questions are based on the basic items found in textbook examples of Japanese junior high school and practice problems. It is necessary to have the ability to calculate accurately and to get into the habit of writing down the calculation process.

### [English]

Questions are based on the content studied in Japanese junior high schools, in the form of dialogues and long sentences, with a wide range of grammar and reading (content comprehension) questions. It is important to ensure that you have mastered what you have learned at school.

\* This booklet contains some of the questions for the 2022 Admission Test.

April 2022,

Admissions Center

International College of Technology, Kanazawa

2022年度入学試験問題

学力評価試験（数学）

2022 Admission Test

Academic ability evaluation (Mathematics)

1 次の問いに答えよ。

Answer the following questions.

(1)  $3 - \left(\frac{3}{2}\right)^2 \times \frac{5}{6}$  を計算しなさい。

Calculate the value of  $3 - \left(\frac{3}{2}\right)^2 \times \frac{5}{6}$

(2)  $\frac{a+2b}{3} - \frac{3a-b}{2}$  を計算しなさい。

Simplify the expression  $\frac{a+2b}{3} - \frac{3a-b}{2}$

(3)  $3x^2y^3 + (-6xy^4) \times (-2xy)^2$  を計算しなさい。

Simplify the expression  $3x^2y^3 + (-6xy^4) \times (-2xy)^2$

(4)  $\sqrt{18} + \sqrt{12} - 5\sqrt{2} + 4\sqrt{3}$  を計算しなさい。

Calculate the value of  $\sqrt{18} + \sqrt{12} - 5\sqrt{2} + 4\sqrt{3}$

(5)  $\sqrt{75} \times \sqrt{24}$  を計算しなさい。

Calculate the value of  $\sqrt{75} \times \sqrt{24}$

(6)  $\frac{3\sqrt{2}}{\sqrt{6}}$  の分母を有理化しなさい。

Simplify the expression  $\frac{3\sqrt{2}}{\sqrt{6}}$  such that the denominator contains no root.

(7) 数  $-2, -2.3, -\frac{9}{5}$  の大小を不等号を使って表しなさい。

Use inequality signs to line up the numbers  $-2, -2.3, -\frac{9}{5}$

(8) 数  $5, \sqrt{23}, \sqrt{19}$  の大小を不等号を使って表しなさい。

Use inequality signs to line up the numbers  $5, \sqrt{23}, \sqrt{19}$

(9) 半径が  $r$  cm, 中心角が  $a^\circ$  のおうぎ形の面積が  $S$  cm<sup>2</sup> であるとき、 $a$  を  $r$  と  $S$  を用いて表しなさい。

The radius of a sector is " $r$ " cm, the central angle is " $a^\circ$ " and the area is " $S$ " cm<sup>2</sup>. Express the value of " $a$ " in terms of " $r$ " and " $S$ ".

(10)  $(a+3)(a+4) - (a-2)^2$  を計算しなさい。

Simplify the expression  $(a+3)(a+4) - (a-2)^2$

(11)  $A = x + 2y$ ,  $B = 3x - y$  のとき,  $2A - 3(A - 2B)$  を計算し,  $x$  と  $y$  で表しなさい。

If  $A = x + 2y$  and  $B = 3x - y$ , express  $2A - 3(A - 2B)$  in terms of  $x$  and  $y$ .

2 次の式を因数分解しなさい。

Factorize the following expressions.

(1)  $6x^2y + 2xy^2 - 10xy$

(2)  $x^2 + 7x - 18$

(3)  $9x^2 + 12x + 4$

(4)  $(x-2)^2 + 2(x-2) - 15$

3 次の方程式を解きなさい。

Find the unknown variables in each of the following equations.

(1)  $5x - 3(2x + 1) = 4x - 7$

(2)  $3:4 = x:2$

(3) 
$$\begin{cases} 3x + 4y = 2 \\ 2x - 5y = 9 \end{cases}$$

(4)  $x^2 + 4x - 21 = 0$

(5)  $x^2 - 6x + 6 = 0$

4 A, B, C の3人がジャンケンをして1回する。Aだけが勝つ確率を求めなさい。

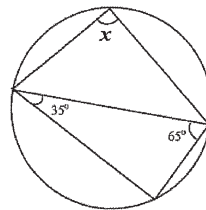
If three people A, B and C play a game of rock-paper-scissors, what is the probability that only A wins?

5  $y$  は  $x$  に反比例し、 $x=3$  に対応する  $y$  の値が  $y=4$  である。 $x$  の変域が  $1 < x < 6$  であるとき、 $y$  の変域を求めなさい。

Suppose  $y$  is inversely proportional to  $x$  such that when  $x=3, y=4$ . If the range of  $x$  is  $1 < x < 6$ , find the range of values that  $y$  can take.

6 右の図の  $\angle x$  の大きさを求めなさい。

Find  $\angle x$  in the figure to the right.



- 7 2点  $A(-3,1)$ ,  $B(2,4)$  の間の距離を求めなさい.

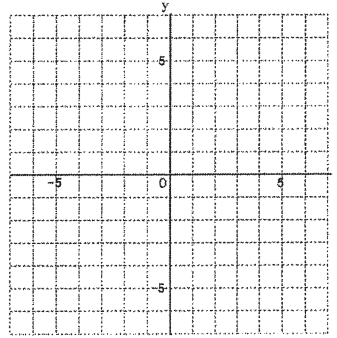
Find the distance between two points  $A(-3,1)$  and  $B(2,4)$ .

- 8 次の問いに答えなさい.

Answer the following questions.

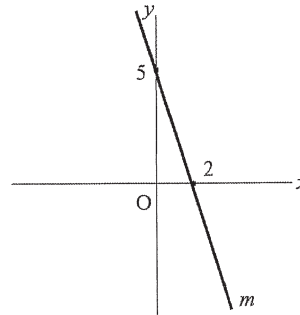
- (1) 1次関数  $y = \frac{2}{3}x - 4$  のグラフをかきなさい.

Sketch the graph of the linear function  $y = \frac{2}{3}x - 4$ .



- (2) 右の図の直線  $m$  の式を求めなさい.

Find the equation of the line " $m$ " in the figure to the right.

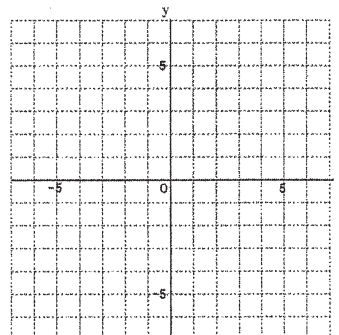


- (3) 切片が  $-3$  で点  $(8,3)$  を通る直線の式を求めなさい.

Find the equation of line whose  $y$ -intercept is  $-3$  and which passes through the point  $(8,3)$ .

- (4) 関数  $y = \frac{2}{3}x^2$  のグラフをかきなさい.

Sketch the graph of the function  $y = \frac{2}{3}x^2$ .



- (5) 関数  $y = -\frac{1}{4}x^2$  について、 $x$  の変域が  $-4 \leq x \leq 2$  のときの  $y$  の変域を求めなさい.

For the function  $y = -\frac{1}{4}x^2$ , find the range of values that  $y$  can take if the range of  $x$  is  $-4 \leq x \leq 2$ .

2022年度入学試験問題

学力評価試験（英語）

2022 Admission Test

Academic ability evaluation (English)

I. ( )内の語(句)を正しく並びかえなさい。

与えられた英単語は、文頭で使われていても小文字にしています。

(1) ( the dancing / for / is / it / many / necessary / practice / times / to ) contest.

(2) ( computer / expensive / friend / his / is / me / mine / more / my / than / told ).

(3) She ( delivered / dog / her / the package / was / was / walking / when ).

(4) ( able / are / be / before / finish / going / going / homework / out / to / to / you / your )?



II. 次の会話文の(1)~(5)に入る最も適切な表現を(a)~(j)から1つずつ選び、その記号を書きなさい。

Teacher: OK, class is over. Does anyone have any questions about today's lesson?

Student: ( 1 ), I do.

Teacher: Yes, what is it?

Student: I didn't understand the last few slides. Could you explain them again, please?

Teacher: ( 2 ), but we don't have enough time now. Come and see me during office hours and I can explain them again.

Student: OK. When are your office hours?

Teacher: Every Monday at half past four.

Student: Oh. I have homeroom on Monday afternoon. ( 3 )?

Teacher: Yes, I'm free all afternoon. What time is best for you?

Student: How about two o'clock?

Teacher: ( 4 ). Let's meet in the library at two.

Student: Do I need to bring anything?

Teacher: Yes, bring your notes, textbook, and a pencil.

Student: OK. Thank you, sir. ( 5 ).

Teacher: You're welcome. Bye.

(a) Can I ask a question

(b) Do we have homework

(c) Do you have time on Wednesday

(d) Excuse me, sir

(e) Friday is good for me

(f) I have another meeting

(g) I'll see you this afternoon

(h) I'm sorry

(i) See you then

(j) That's fine

- III. 次のパッセージを完成させるため、(1)~(8)に入る最も適切な語を(a)~(h)の中から選び、その記号を書きなさい。
- 与えられた語は、文頭で使われていても小文字にしています。

### Insects as Food

Do you like to eat insects? Some people might think it is strange to eat insects, but in ( 1 ), eating insects is good for both your body and the environment.

Insects are very high in protein. Your body needs protein to ( 2 ) and repair your muscles, skin, and bones. It is ( 3 ) for humans to live. Different insects have different amounts of protein depending on their ( 4 ), size, and age. Grasshoppers, crickets, beetles, caterpillars, and ants are all great examples of insects that are healthy to eat.

Additionally, eating insects ( 5 ) energy and resources. For ( 6 ), beetles and crickets do not need as much food or water ( 7 ) other animals such as cows, pigs, and chickens. Insects also produce less greenhouse gas and take less space to farm. This means that insects have a much ( 8 ) impact on the environment than other sources of protein.

- |               |             |             |          |
|---------------|-------------|-------------|----------|
| (a) as        | (b) example | (c) fact    | (d) grow |
| (e) important | (f) saves   | (g) smaller | (h) type |

IV. 次のパッセージを完成させるため、(1)~(12)に入る最も適切な語を(a)~(n)の中から  
選び、その記号を書きなさい。ただし、必要のない単語が2語含まれています。  
与えられた語は、文頭で使われていても小文字にしています。

### How Greenlanders' Lives Have Changed

People who live in Greenland are called Greenlanders. Because a large part of Greenland is  
( 1 ) with ice, Greenlanders live close to the ocean. Their biggest traditional industry is fishing. But  
as the world's climate is getting ( 2 ), their lives are changing. Fishing is becoming more difficult,  
and people are changing the way they fish.

Greenland is also surrounded by ice. Icebergs or pieces of ice, the size of a bus, are found ( 3 )  
out in the ocean. Scientists think that if the ice in and around Greenland melts, sea levels will ( 4 )  
around the world by 7.5 meters. Rising sea levels have already started to change the lives of the more  
( 5 ) 56,000 people who live in Greenland.

In addition to fishing, global warming is changing Greenlanders' lifestyles in other ways. Many  
people ( 6 ) a longer growing ( 7 ) in spring and summer. In fact, some people are happy because  
they can do more ( 8 ) because the temperature is going up. They enjoy eating the ( 9 ) they grow  
and they do not have to buy all their food from other countries. However, some people worry that when  
the ice melts, and the water goes ( 10 ) the sea, there will not be much water left for growing plants.

However, global warming is not changing some traditions. Many Greenlanders like to sing a  
traditional song about the ( 11 ) of time. They still sing about the long winters and ( 12 ) summers  
even though the seasons are different now.

(a) autumn	(b) covered	(c) far	(d) farming
(e) flowers	(f) importance	(g) into	(h) prefer
(i) rise	(j) season	(k) short	(l) than
(m) vegetables	(n) warmer		



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