

# 理解力評価テスト問題集

令和7年度

## ■総合選抜（女子奨学生）

|         |   |
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| 数学      | 1 |
| 外国語（英語） | 3 |

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# 数学 問題

注意：問題（１）から（４）の解答は [数学] の「１」の解答マーク欄を使用してください。

問題

(1)  $x = \frac{5 - \sqrt{15}}{5 + \sqrt{15}}$ ,  $y = \frac{5 + \sqrt{15}}{5 - \sqrt{15}}$  のとき,  $x + y = \boxed{\text{ア}}$ ,  $x^2 + y^2 = \boxed{\text{イウ}}$ ,  
 $x^3 + y^3 = \boxed{\text{エオカ}}$  である.

(2) 方程式  $|x^2 + x - 6| = x + 7$  の解は  $x = \boxed{\text{キク}}$ ,  $\pm \sqrt{\boxed{\text{ケコ}}}$  である.

(3)  $a$  を定数とする. 2 次関数  $y = -x^2 + 3x + a$  ( $-1 \leq x \leq 3$ ) の  
最大値が 5 であるとき,  $a = \frac{\boxed{\text{サシ}}}{\boxed{\text{ス}}}$  であり, そのときの最小値は  $\frac{\boxed{\text{セソ}}}{\boxed{\text{タ}}}$   
である.

(4) 実数  $x, y$  について, 次の空欄にあてはまるものを下の ①~④ から選べ.  
ただし, 同じものを繰り返し選んでもよい.

(i)  $x^2 + y^2 = 0$  であることは,  $xy = 0$  であるための  $\boxed{\text{チ}}$ .

(ii)  $|x - 1| < 2$  であることは,  $x^2 - 1 < 0$  であるための  $\boxed{\text{ツ}}$ .

(iii)  $x + y \geq 0$  であることは,  $x^2 + y^2 > 0$  であるための  $\boxed{\text{テ}}$ .

- |                    |                    |
|--------------------|--------------------|
| ①必要十分条件である         | ②必要条件であるが, 十分条件でない |
| ③十分条件であるが, 必要条件でない | ④必要条件でも十分条件でもない    |

( [数学] の「１」の解答マーク欄で使用する欄は テ までです. )

注意：問題（５）から（８）の解答は [数学] の「２」の解答マーク欄を使用してください。

(5)  $a$  を定数とする。５個の値からなるデータ  $0, 1, -a, a, 3a$  の平均が 2 であるとき、 $a = \boxed{\text{ア}}$  であり、分散は  $\boxed{\text{イウ}}$  である。

(6) 数字  $0, 2, 3, 4, 6$  がそれぞれ書かれた 5 枚のカードから、無作為に 1 枚ずつ 3 回引き、引いた順に左から並べて整数を作る試行を行う。ただし、引いたカードはもとに戻さないものとする。1 回目に引いたカードが 0 である場合は 2 桁の整数、そうでない場合は 3 桁の整数とする。この試行において、作られた数が 3 桁

の整数となる確率は  $\frac{\boxed{\text{エ}}}{\boxed{\text{オ}}}$  であり、3 桁の偶数となる確率は  $\frac{\boxed{\text{カキ}}}{\boxed{\text{クケ}}}$  である。

また、この試行において、作られた数が 3 桁の整数でなければ 0 点、3 桁の偶数であれば 3 点、3 桁の奇数であれば 5 点を得点とすると、試行を 1 回行う

ときの得点の期待値は  $\frac{\boxed{\text{コサ}}}{\boxed{\text{シス}}}$  である。

(7)  $AB = 2, BC = \sqrt{3}, CD = 2, DA = \sqrt{2}$  である四角形 ABCD が円に

内接している。このとき、 $\cos \angle ABC = \frac{\sqrt{\boxed{\text{セ}}} - \sqrt{\boxed{\text{ソ}}}}{\boxed{\text{タ}}}$  であり、

$AC^2 = \boxed{\text{チ}} + \sqrt{\boxed{\text{ツ}}}$  である。

(8) 正七角形の対角線の本数は  $\boxed{\text{テト}}$  本であり、対角線の交点のうち、正七角形の内部にあるものの個数は  $\boxed{\text{ナニ}}$  個である。

( [数学] の「２」の解答マーク欄で使用する欄は ニ までです。 )

(以上、問題終了)

## 外国語(英語) 問題

I . 次の (ア) ~ (オ) の下線の部分に入れる語句として、最も適切なものを選択肢から一つ選びなさい。

(ア) Sarah doesn't \_\_\_\_\_ to do the assignment.

1. be
2. going
3. has
4. need

(イ) Is there \_\_\_\_\_ you would like from the supermarket?

1. anything
2. anywhere
3. few
4. several

(ウ) I told my children that they have to wake up at 6:00 AM \_\_\_\_\_ tomorrow.

1. start
2. started
3. starting
4. starts

(エ) The news that Tom graduated from college was \_\_\_\_\_ to many people.

1. please
2. pleased
3. pleases
4. pleasing

(オ) The shoes will \_\_\_\_\_ fit him.

1. better not
2. each other
3. no longer
4. used to

(カ) This morning's training session will last three \_\_\_\_\_ four hours.

1. and
2. for
3. in
4. to

(キ) The test \_\_\_\_\_ have been difficult because even Rick failed it.

1. must
2. must not
3. ought
4. ought not

(ク) We discussed the best way \_\_\_\_\_ to complete the project.

1. for what
2. for which
3. in what
4. in which

(ケ) When the woman talked to the boy, his face \_\_\_\_\_ red.

1. came
2. liked
3. turned
4. worried

(コ) \_\_\_\_\_ time Mike visits us, we hold a big family gathering.

1. Every
2. In
3. On
4. That

Ⅱ. A 次の (ア) ~ (オ) の 下線部の単語の文中での意味に最も近いもの を選択肢から一つ選びなさい。

(ア) John thinks that his local park is terrible.

1. awful
2. crowded
3. distant
4. wonderful

(イ) Linda didn't reply when I asked whether she wanted to study with us.

1. agree
2. answer
3. care
4. understand

(ウ) Do you want to switch Pokémon cards with me?

1. buy
2. exchange
3. make
4. play

(エ) When tourists come to my city, they always visit the ancient temple.

1. beautiful
2. famous
3. old
4. secret

(オ) My dog fell into the river but was saved by a man in a boat.

1. caught
2. ignored
3. rescued
4. seen

II. B 次の(カ)～(コ)の下線部の単語の文中での意味と反対の意味を表すもの  
を選択肢から一つ選びなさい。

(カ) I was so happy when I finished the race.

1. began
2. ran
3. watched
4. won

(キ) The river near my home is very wide, but the water is shallow.

1. bright
2. clean
3. deep
4. dirty

(ク) The driver placed our bags on the sidewalk very roughly when we got to the station.

1. cheerfully
2. gently
3. quietly
4. slowly

(ケ) I tried to pay him for giving me a ride, but he wouldn't accept any money.

1. break
2. count
3. reject
4. spend

(コ) I've never seen Robert harm anyone.

1. help
2. hurry
3. ignore
4. like

Ⅲ. A 次の(ア)～(オ)に入れる文として、最も適切なものを選択肢から選びなさい。選択肢は、一回しか使えません。

A: Hi, Steve. What's in that envelope?

B: ( ア )

A: Nice! How much did they give you?

B: They gave me \$100! ( イ )

A: That's a big decision. Is there something you need that you could use it for?

B: No, not really. That's why I'm having a hard time deciding.

A: ( ウ )

B: That's kind of boring. I want to use the money for something fun!

A: Oh, I have a great idea! ( エ )

B: Actually, that sounds like fun. Where would you like to go?

A: How about the sushi restaurant downtown? ( オ ) You'll have enough money left over to buy me an ice cream!

B: I haven't had sushi in quite a while. Let's go tonight!

[選択肢]

1. I turned nineteen years old last week.
2. I'm trying to decide what to buy with it.
3. It's money I received from my parents for my birthday.
4. She went to an amusement park!
5. The food is delicious and not too expensive.
6. When was your birthday?
7. Why don't you put it in your bank account and save it?
8. You can take me to dinner at a nice restaurant!

Ⅲ. B 次の(カ)～(コ)に入れる文として、最も適切なものを選択肢から選びなさい。選択肢は、一回しか使えません。

A: I'm thinking of having a BBQ this weekend. Are you available?

B: That sounds like fun! ( \_\_\_\_\_ カ \_\_\_\_\_ )

A: That's perfect. I think it's going to rain on Saturday anyway. I can go to the supermarket on Sunday morning.

B: That would be great. ( \_\_\_\_\_ キ \_\_\_\_\_ )

A: I'm thinking of cooking hamburgers and some vegetables, so I'll get those.  
( \_\_\_\_\_ ク \_\_\_\_\_ )

B: Well, I like cooking corn on the grill. Could you get some?

A: Of course! ( \_\_\_\_\_ ケ \_\_\_\_\_ )

B: It sure is. Oh, and don't forget the drinks! Also, do you have enough charcoal?

A: Yes, I still have some left from the last time we had a BBQ. Can you think of anything else we need?

B: Hmm... ( \_\_\_\_\_ コ \_\_\_\_\_ )

A: Good idea! I'll buy some of those too. They'll make the BBQ more exciting.

[選択肢]

1. Do you have any requests?
2. I'm busy on Saturday, but I'm free on Sunday afternoon.
3. It's always fun to light fireworks at a BBQ.
4. It's tasty and fresh this time of year.
5. That's not true!
6. What are you going to buy there?
7. What time do you finish work?
8. You burned the steak!

IV. 次の英文は「ディンゴ柵による影響」について述べたものです。(ア)～(コ)に入れる最も適切なものを選択肢から選びなさい。

Australia is home to many unique animals, among which the dingo is the largest land-based predatory mammal. These wild dogs' natural prey includes native Australian animals such as kangaroos, wallabies and emus. (ア) the development of livestock farming in the 1800s, animals such as sheep and goats also became prey for the dingoes. As the sheep farming industry, in particular, began to expand in Australia, dingo attacks became more (イ) . To protect the sheep, the idea of a dingo-proof fence was suggested. The result was the construction of one of the longest fences in the world.

Known as the Dingo Fence, this mega-structure (ウ) more than 5,600 km across Australia. Completed in the 1950s, it stretches from Queensland in the northeast of Australia to the cliffs of the Great Australian Bight in South Australia. In areas southeast of the fence, sheep farming was encouraged, and any dingoes found in this region were removed from the land. In areas northwest of the fence, dingoes were allowed to remain. The Dingo Fence is maintained to this day and has been largely successful in its (エ) role of protecting livestock from dingo attacks in southeastern Australia.

(オ) , scientists have noticed an interesting difference in the kangaroos on opposite sides of the fence. In one study, they looked at two isolated populations of kangaroos. The northern population lived alongside the predatory dingoes, while the southern population lived without the (カ) of possible dingo attacks.

The researchers found that the kangaroo population north of the fence grew faster, (キ) larger sizes at younger ages. That population also contained fewer female and young kangaroos. Moreover, there was less food available to the northern population. In contrast, the southern population of kangaroos had more food available, were lighter and smaller, and generally grew more (ク) .

The scientists believe faster growth rates may provide a survival advantage for kangaroos north of the fence, where dingoes remain a (ケ) . Dingoes are more likely to attack young, vulnerable, or smaller kangaroos, many of which are females. The young kangaroos are either killed by dingoes or grow quickly and survive. However, the faster growth rates may come at a cost. If all of the kangaroos' energy is being put into growing fast, other aspects of their development may be compromised. The animals might have poorer health or produce fewer babies.

What has surprised scientists is how fast the difference in the two populations has (コ) . In less than 100 years, the Dingo Fence has had a major effect on the growth patterns in the kangaroo population. Usually, such changes in evolution take much longer. While more research is needed to understand the impact the Dingo Fence is having on kangaroos, scientists are also interested in knowing if similar patterns are present in other native Australian animals on opposite sides of the fence.

- |     |                             |                                  |               |
|-----|-----------------------------|----------------------------------|---------------|
| (ア) | 1. After<br>4. Then         | 2. Although<br>5. Which          | 3. For        |
| (イ) | 1. experience<br>4. option  | 2. frequent<br>5. quietly        | 3. generation |
| (ウ) | 1. extends<br>4. stand      | 2. farther<br>5. widen           | 3. happened   |
| (エ) | 1. elevation<br>4. support  | 2. give<br>5. traditionally      | 3. primary    |
| (オ) | 1. Recently<br>4. Until     | 2. Somewhat<br>5. Without        | 3. This       |
| (カ) | 1. capable<br>4. mainly     | 2. enough<br>5. stress           | 3. knowing    |
| (キ) | 1. aims<br>4. rewarded      | 2. many<br>5. very               | 3. reaching   |
| (ク) | 1. bring<br>4. private      | 2. doubt<br>5. slowly            | 3. final      |
| (ケ) | 1. builder<br>4. sustain    | 2. comfortable<br>5. threat      | 3. majorly    |
| (コ) | 1. appeared<br>4. operation | 2. characters<br>5. particularly | 3. deep       |

V. 次の (ア) ~ (オ) のそれぞれの日本語の意味を表す英文になるように、各英文の空欄に語または句を最も適切な順番に並べた場合、3番目にくるものの番号を選びなさい。ただし、文頭にくるものも小文字で書いてあります。また、必要なコンマが省略されている場合もあります。[解答欄のカ~コは使用しません。]

(ア) 先生は私に質問に答えられるかたずねた。

The teacher \_\_\_\_\_ answer the question.

- |          |          |      |
|----------|----------|------|
| 1. asked | 2. could | 3. I |
| 4. if    | 5. me    |      |

(イ) 数学でゆりほど優秀な学生は他にいない。

\_\_\_\_\_ good as Yuri at mathematics.

- |          |            |       |
|----------|------------|-------|
| 1. as    | 2. is      | 3. no |
| 4. other | 5. student |       |

(ウ) 必要があればいつでも遠慮なくご連絡ください。

Please \_\_\_\_\_ to me whenever you need.

- |          |         |        |
|----------|---------|--------|
| 1. feel  | 2. free | 3. out |
| 4. reach | 5. to   |        |

(エ) あなたが何を言わんとしているのか理解できません。

I don't \_\_\_\_\_ to say.

- |         |           |               |
|---------|-----------|---------------|
| 1. are  | 2. trying | 3. understand |
| 4. what | 5. you    |               |

(オ) ここが研究のために私たちが使う実験室です。

This is \_\_\_\_\_ for our research.

- |                   |         |       |
|-------------------|---------|-------|
| 1. the laboratory | 2. use  | 3. we |
| 4. which          | 5. will |       |

[以上、試験問題終了]

# ■解答

## 数学

- (1) ア. 8 イウ. 62 エオカ. 488  
(2) キク. -1 ケコ. 13  
(3) サシ. 11 ス. 4 セソ. -5 タ. 4  
(4) チ. 3 ツ. 2 テ. 4  
(5) ア. 3 イウ. 16  
(6) エ. 4 オ. 5 カキ. 13 クケ. 20 コサ. 27 シス. 10  
(7) セ. 3 ソ. 2 タ. 4 チ. 4 ツ. 6  
(8) テト. 14 ナニ. 35

## 英語

- I. (ア) - 4 (イ) - 1 (ウ) - 3 (エ) - 4 (オ) - 3  
(カ) - 4 (キ) - 1 (ク) - 4 (ケ) - 3 (コ) - 1  
II. A (ア) - 1 (イ) - 2 (ウ) - 2 (エ) - 3 (オ) - 3  
II. B (カ) - 1 (キ) - 3 (ク) - 2 (ケ) - 3 (コ) - 1  
III. A (ア) - 3 (イ) - 2 (ウ) - 7 (エ) - 8 (オ) - 5  
III. B (カ) - 2 (キ) - 6 (ク) - 1 (ケ) - 4 (コ) - 3  
IV. (ア) - 1 (イ) - 2 (ウ) - 1 (エ) - 3 (オ) - 1  
(カ) - 5 (キ) - 3 (ク) - 5 (ケ) - 5 (コ) - 1  
V. (ア) - 4 (イ) - 5 (ウ) - 5 (エ) - 5 (オ) - 3