

2023年度

## アレセア湘南高等学校入試問題

【数 学】 (50分) &lt;満点:100点&gt;

[1] 次の計算をなさい。

(1)  $-3^2 + 24 \div (-2)^3$

(2)  $72^2 - 68^2$

(3)  $\frac{x-5y}{3} - \frac{2x-y}{8}$

(4)  $(2a+3)(4a^2-6a+9)$

[2] 次の式を因数分解しなさい。

(1)  $6x^2y - 15xy^2$

(2)  $x^2 - 15x + 56$

(3)  $a^2 - (b-c)^2$

(4)  $3x - 6y + 9x^2 - 36y^2$

[3] 次の方程式を解きなさい。

(1)  $-4x - 7 = 10$

(2) 
$$\begin{cases} -6x + 3y = 15 \\ 4x - y = 13 \end{cases}$$

(3)  $x^2 - 3x - 9 = 0$

(4)  $(x+2)^2 = \frac{x^2 + x + 38}{2}$

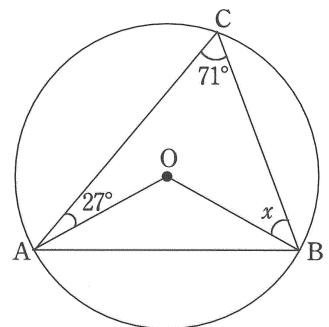
[4] 次の問に答えなさい。

(1)  $\sqrt{108n}$  が整数となるように、最も小さい自然数  $n$  を求めなさい。

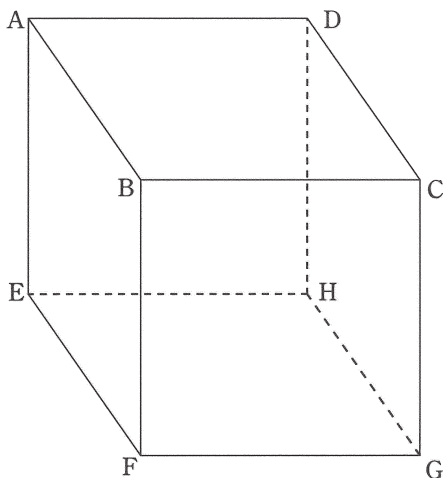
(2) 1 から30までの素数の和を求めなさい。

(3)  $x = \sqrt{5} - 3$ ,  $y = \frac{\sqrt{5}}{4} + 3$  のとき,  $x^2 - 8xy + 16y^2$  の値を求めなさい。

(4) 正二十面体の辺の数を求めなさい。

[5] 次の図において,  $\angle x$  の大きさを求めなさい。

- 6 下のような1辺が20cmの立方体があります。辺AE, EF, FG, GC, CD, DAの中点を結んでできる図形の面積を求めなさい。

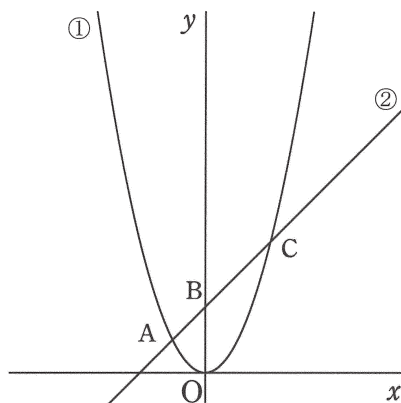


- 7 ある海域にいるアザラシを35頭捕獲し印をつけて戻した。1週間後に同じ海域で80頭捕獲したところ25頭に印が付いていた。この海域にはアザラシは何頭いると考えられるか答えなさい。

- 8 さいころ1つとトランプ1組（ジョーカーを除く52枚）があるとき、次の問に答えなさい。
- (1) サイコロを投げて2の目が出て、トランプから1枚引くと奇数のカードが出る確率を求めなさい。
  - (2) サイコロを投げて1の目が出て、トランプから1枚引くと偶数のカードが出る確率を求めなさい。
  - (3) サイコロを投げて次にトランプを1枚引くとき、お互いの数の積が偶数になる確率を求めなさい。

- 9 関数  $y = ax^2 \cdots \textcircled{1}$  と  $y = x + 2 \cdots \textcircled{2}$  のグラフが、次の図のように2点A, Cで交わっている。②とy軸との交点を点Bとし、点Aのx座標が-1であるとき、次の問に答えなさい。

- (1)  $a$  の値を求めなさい。
- (2) 点Pを①の原点以外のAC上に取り  $\triangle OAC = \triangle PAC$  となるような点Pの座標を求めなさい。
- (3) (2)において  $\triangle OAC$  の面積は  $\triangle OPB$  の面積の何倍か求めなさい。



## 【英 語】 (50分) &lt;満点:100点&gt;

1 下線部と同じ発音の単語を選び、記号で答えなさい。

(1) He read an interesting book.

ア real                  イ season                  ウ bread                  エ speak

(2) I visited Chigasaki last year.

ア rained                  イ returned                  ウ needed                  エ hoped

(3) He brought me a nice present.

ア work                  イ walk                  ウ broke                  エ lose

(4) The birds are singing in the tree.

ア car                  イ turn                  ウ heart                  エ war

(5) What do you want to study in college?

ア focus                  イ doctor                  ウ stone                  エ move

2 次の語の最も強く発音する部分を記号で答えなさい。

(1) tech - nique                  (2) man - ag - er                  (3) ec - o - nom - ic

ア    イ                          ア    イ    ウ                          ア    イ    ウ    エ

(4) mod - ern                  (5) re - li - gion

ア    イ                          ア    イ    ウ

3 次の対話文を読むとき、下線部の中で最も強く発音すべきものをそれぞれ1つ選び、記号で答えなさい。

(1) A : I like playing tennis. How about you?

B : I like watching tennis.  
ア    イ                  ウ                  エ

(2) A : How do you go to school?

B : I go to school by bus.  
ア    イ                  ウ                  エ                  オ

(3) A : Did you see the movie last Sunday?

B : No. I saw it last Friday.  
ア    イ                  ウ                  エ                  オ

(4) A : What did you do at the party?

B : I danced with Jane.  
ア    イ                  ウ                  エ

4 各文の (    ) にあてはまる最も適切な語 (句) を選び、記号で答えなさい。

(1) How (    ) is it from here to your school?

ア many                  イ long                  ウ much                  エ far

(2) (    ) I am tall, my sister isn't.

ア Though                  イ Because                  ウ That                  エ If

- (3) I want a desk (       ) wood.  
 ア made by    イ made of    ウ made out    エ made into
- (4) I think that woman (       ) hair is golden is a Japanese.  
 ア which        イ that            ウ whose        エ who
- (5) I'm looking forward (       ) you.  
 ア see            イ to see        ウ to seeing    エ saw
- (6) They have (       ) for the dog since this morning.  
 ア looking        イ look            ウ been looking    エ been looked
- (7) My grandfather goes to bed much (       ) than I.  
 ア early            イ quick            ウ earlier        エ earliest
- (8) Let's go to the zoo, (       )?  
 ア shall we    イ don't we    ウ will you    エ don't you

5 日本文の意味を表すように (    ) 内の語句を並べ替え、1 番目と 4 番目にくるものを記号で答えなさい。なお文頭にくる文字も小文字にしてあります。

- (1) なぜ彼らは来なかったのでしょうか。  
 ( ア wonder    イ they    ウ why    エ didn't    オ I ) come.
- (2) 彼がフランス語をマスターするのは簡単でした。  
 ( ア easy    イ was    ウ it    エ him    オ for ) to master French.
- (3) 母はすでに仕事に行っていました。  
 ( ア gone    イ my mother    ウ already    エ to    オ has    カ work ) .
- (4) 私は、彼にもっとゆっくり歩いてくれるように頼みました。  
 I ( ア him    イ more    ウ asked    エ to    オ walk ) slowly.
- (5) あなたの部屋から夜、星がたくさん見えますか。  
 ( ア are    イ at    ウ many    エ seen    オ stars ) night from your room?

6 各組の文がほぼ同じ内容になるように、(    ) 内に適切な語を入れなさい。

- (1) { Please bring this child some water.  
 Please bring some (       )(       )(       )(       ).
- (2) { Do you know the name of this flower?  
 Do you know (       ) this flower (       )(       )?
- (3) { What language do people in Australia speak?  
 What is the (       )(       ) in Australia?
- (4) { As I am busy, I can't go shopping with you.  
 If I (       ) not busy, I (       ) go shopping with you.
- (5) { No other mountain in Japan is as high as Mt. Fuji.  
 Mt. Fuji is (       )(       )(       ) other mountain in Japan.

- 7 次の“しゃっくりが起きる理由について”の文章を読み、後の問に答えなさい。

### Why do we get the hiccups?

One-hundred years ago on June 13, a man named Charles Osborne started hiccupping — and it didn't stop for 68 years!

Can you imagine ① that? More than half-a-century of hiccupping?

But we know this unbelievable story is true because Osborne was entered in the \*Guinness World Records as the man with the longest attack of hiccups.

Fortunately most of us get the hiccups only once in a while. But have you ever wondered why do hiccups happen?

Hiccups can happen for a lot of reasons. Some of them are ( ② ), and some emotional. Some common ③ causes include:

- ・ Eating too much or too quickly
- ・ Feeling nervous or excited
- ・ Drinking too much alcohol
- ・ Stress
- ・ A sudden change in temperature

Unlike Osborne's case, most of the hiccups will ④ go away on their own. However, there are also plenty of home solutions. Not all of these have been proven to stop hiccups, but you can try the following potential treatments for hiccups at home:

- ・ Breathe into a paper bag
- ・ Eat a teaspoon of sugar
- ・ Drink a glass of cold water
- ・ Bring your knees to your chest and keep this position

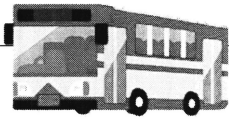
\*Guinness World Records ギネス世界記録

- (1) 下線部①の that の内容を日本語で答えなさい。
- (2) (②)に入る最も適切な語をア～エから1つ選び、記号で答えなさい。  
ア mental      イ physical      ウ personal      エ economical
- (3) 下線部③の causes, 下線部④の go away とほぼ同じ意味になる英語1語をそれぞれ本文中から抜き出しなさい。
- (4) 本文中にある、家庭でしゃっくりを止める方法を1つ日本語で答えなさい。
- (5) 本文の内容と合っているものを次のア～エから1つ選び、記号で答えなさい。  
ア The story of Osborne isn't true.  
イ You easily get the hiccups on a cold day.  
ウ Hiccups can only occur in children.  
エ Hiccups can be triggered by over-excitement.

- 8 次の案内掲示を見て、後の問に答えなさい。

## How to access Nine Island from Hanamaru City

### □ By Bus



Take Bus route J.6 from Hanamaru Station East Exit Bus stop No.6.

Bus stop Hanamaru Sta.

8 min 180yen

Bus stop History Museum

26 min 290yen

Bus stop Nine Island

\* There are many *Okonomiyaki* restaurants around History Museum.

### □ Bicycle Rental Shop



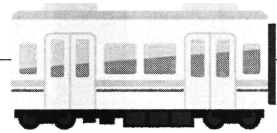
Access : 2 min walk from Hanamaru Sta.

Cost : 2500yen per day.

Hours : 9:00-19:00.

\* It takes 40 min from Hanamaru Sta. to Nine Island.

### □ By Train

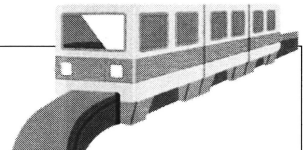


Take Seaside Line from Hanamaru Station.

Hanamaru Sta.	220yen 5 min	Heiwa Sta.	200yen 18 min	Nagomi Sta.
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- \* 15 min walk from Nagomi Sta. to Nine Island.
- \* Child fares are half the price of the adult price.
- \* There is a famous Ramen-shop near Heiwa Sta.

### □ By Monorail

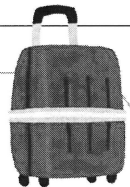


Take Center-Monorail from Amane Station.

Amane Sta.	320yen 25 min	Rose Sta.
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- \* 4 min walk from Hanamaru Sta. to Amane Sta.
- \* 3 min walk from Rose Sta. to Nine Island.

Leave your baggage at Hanamaru Station for pleasant sightseeing!



#### □ Location

Hanamaru City Tourist Association, 4<sup>th</sup> floor of White Building, to the left of Hanamaru Station West Exit.

#### □ Hours

8:00-17:00

#### □ Fee

Bag: 300yen / piece Suitcase: 600yen / piece

\* The office closes at 17:00. If you are late, baggage pickup is available on the following day.

- (1) You are in front of Hanamaru Station now. Which way is the fastest to get to Nine Island?  
ア By bus.            イ By train.            ウ By monorail.            エ By bicycle.
- (2) A man and his daughter ( 4 years old ) visited Nine Island by train. They left a suitcase and two bags at Hanamaru City Tourist Association. How much money did they pay?  
ア 1,860 yen.            イ 2,160 yen.            ウ 2,460 yen.            エ 2,880 yen.
- (3) Students from Australia want to eat local Japanese food and study about old Japanese buildings. They want to visit Nine Island too. One of them uses a wheelchair. Which way is the best?  
ア By bus.            イ By train.            ウ By monorail.            エ By bicycle.
- (4) Which of the following is true according to the information?  
ア You can pick up your baggage from Tourist Association any time.  
イ Bicycle Rental shop is far from Hanamaru Station.  
イ Rose Station is closer to Nine Island than Nagomi Station is.  
エ You can rent a bicycle from 8:00.

9 次の文章を読み、後の間に答えなさい。

***Plastic straws are little, but they are part of a huge problem***

The next time you ( ① ) a soda in a to-go cup, you might be surprised to find your straw is made of paper. That's because more and more restaurants are trying to stop using plastic straws. How could something as little as a straw cause such a ( ② ) problem? It's actually the ( ③ ) size of straws that makes them bad for the environment.

**[ Why is plastic bad for the planet? ]**

It's important to limit your use of plastic for a few reasons. First, it takes energy and resources to make any object. Many items made out of thin plastic, such as plastic straws and bags, are meant to be used ( ④ ). In most cases, it's better for the environment to make and buy ⑤[ long / products / last / time / a / that ].

But the trouble doesn't end there. Most plastics don't \*decompose when we throw them away. Plastics can stay in \*landfills for hundreds of years. And plastic in the ocean floats around as small pieces (called microplastics) that can poison animals and ( ⑥ ) the environment.

Straws are only one small part of the problem. Humans have created about 9.1 billion tons of plastic since inventing the material, and we don't ( ⑦ ) most of

it. Straws probably make up a very, very small percentage of our trash worldwide. But they've recently gotten a lot of attention because of how difficult they are to recycle.

【                      ⑧                      】

“The best way to keep plastic straws out of landfills is not to ( ⑨ ) them — whether you're at home or in a restaurant,” says Jonathan Kuhl of the D.C. Department of Public Works. “If you'd like to use a straw, there are paper and ⑩ other nonplastic alternatives.”

Some people need plastic straws to drink because of physical limitations, so until we find an alternative that works for everyone, we can't get rid of them entirely. But if you drink with a straw just for fun or convenience, you should try to stop using plastic ones.

Paper straws will probably crop up at many stores and restaurants, but you can also try reusable straws made of bamboo, metal and glass. Some companies even make straws out of pasta. You can give that method a try at home with a \*hollow noodle. Just don't try to use it for a hot \*beverage, ( ⑪ ) you're going to end up cooking a very strange soup!

\*decompose 分解する      \*landfill 埋め立て地      \*hollow 中が空洞の      \*beverage 飲み物

(1) ①, ⑥, ⑦, ⑨に入る適切な語をア～エから1つずつ選び、記号で答えなさい。

(同じ記号を2度使うことはできない)

ア use                                  イ buy  
ウ hurt                                エ recycle

(2) ②と③に入る語の組み合わせとして最も適切なものをア～エから1つ選び、記号で答えなさい。

ア big – big                          イ big – small  
ウ small – small                  エ small – big

(3) ④に入る最も適切な語(句)をア～エから1つ選び、記号で答えなさい。

ア once                                イ often  
ウ many times                      エ until they cannot be used anymore

(4) ⑤の [    ] 内の語を意味が通るように、正しい順に並び替えなさい。

(5) ⑧に入るサブタイトルとして適切なものをア～エから1つ選び、記号で答えなさい。

ア Why can't we just recycle plastic straws?  
イ What can we do about it?  
ウ Recycling is very important.  
エ Plastic straws are too small to be recycled.

(6) 次のページの文は下線部⑩に関する日本語の要約文です。(ア)～(エ)に入る適切な日本語を答えなさい。



身体的な制約がある人もいるので（ ア ）製のストローを完全に廃止することはまだできない。（ イ ）製のストローは多くの店やレストランで目にするが、竹、金属、（ ウ ）で作られた再利用可能なストローを利用することもできる。（ エ ）から作られたストローを開発する企業も出てきた。

(7) ⑪に入る最も適切な語をア～エから1つ選び、記号で答えなさい。

ア and      イ or      ウ but      エ when

(8) 次の質問に20語程度の英文で答えなさい。ピリオド、カンマは語数に入りません。

Do you do anything good for the environment?