

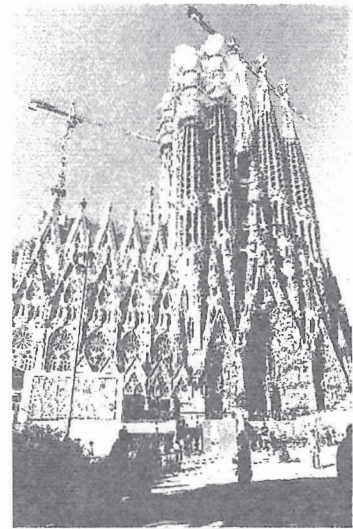
問1 次の文章は、かもめ高校に通う4人の生徒（Ao, Rui, Nao, Kei）とスペイン出身の留学生（Sam）の会話の一場面である。次の会話文を読んで、あとの(ア)～(オ)の問いに答えなさい。

会話文

- Ao : Hey, everyone! Sorry for being late.
Rui : Oh, don't worry. It hasn't been that long.
Ao : It's a holiday today, so many people are visiting here.
Nao : Yes! Also, there is always *construction at Yokohama Station.
Kei : That's right. A lot of people call it "Japan's Sagrada Familia."
Sam : Sagrada Familia? That's a *Catholic building in my country. It doesn't look anything like Yokohama Station. Why is it called that?
Kei : Because there is always construction, and it is taking a long time to finish.
Nao : I don't know much about the real Sagrada Familia.
Sam : I see.

(Shows Picture 1)

This is the Sagrada Familia. I took this picture two years ago, and the construction still wasn't finished. It's in my country and was designed by the famous *architect, Antoni Gaudi.



Picture 1

- Ao : I love European and Japanese buildings. I've seen some buildings Antoni Gaudi designed in books before.
Sam : Construction of the Sagrada Familia began in 1882. In 2005, it became a *World Cultural Heritage Site. Right now, there are no original design plans for it. Do you know why?
Rui : I like history, so I think I know. Weren't they *burned during *the Spanish Civil War?
Sam : That's right.
Nao : Weren't they kept somewhere safe?
Sam : Gaudi's students *hid the plans in the Sagrada Familia.
Nao : Oh, you mean they thought the inside of the building was A .
Rui : Yes. However, the *military leader at the time B *the Catholic Church, so people in the city who were against him attacked the Sagrada Familia.
Sam : That's true. The Sagrada Familia was attacked by C . Also, the building's designs were original and *complicated, so the construction was very difficult. Gaudi died in 1926 before the Spanish Civil War, so it became almost *impossible to finish the building. But now, construction has been speeding up. Do you know why?
Kei : Oh, did they find the original designs?
Sam : Hmm, no. There are many reasons, but one of the biggest reasons is "new digital technologies and computers." The Sagrada Familia has many *curved and *twisted parts. Making them by hand was very difficult. However, since the 2000s, with the help of new technologies such as 3D printers, people can now create 3D models of complicated and curved parts. These models are helping people build the Sagrada Familia. Now, construction is faster. I think new technologies are great.
Rui : I see.

Ao : By the way, I read a book about the Sagrada Familia. The building has curved *surfaces, but not many curved lines.

Sam : Not many curved lines? I think Gaudi's buildings have many curved lines. What do you mean?

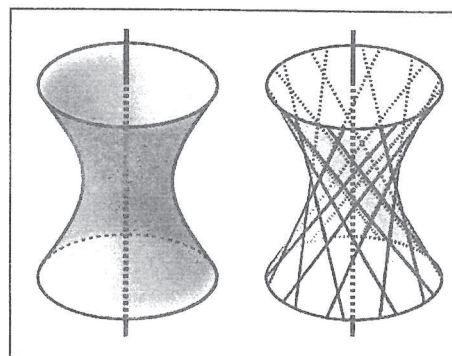
Ao : Here is an example. Look at this picture.
(Shows Picture 2)

Nao : Oh! I've seen a building of this *shape before.

Ao : It is formed by rotating one of two straight lines in ①a skew position around the other.

Sam : Wow! That's interesting! I didn't know that!

Ao : These curved surfaces are used a lot in the Sagrada Familia. I thought Gaudi used the shape well.



Picture 2

Kei : I see! You really love buildings, don't you?

Ao : I'm sorry for talking so much.

Nao : Don't be sorry. We learned a lot from you. Thank you so much!

Rui : Now, I want to see the Sagrada Familia when it's all finished.

Sam : The main tower is in the final stages of construction. Please visit my country! I'll show you around.

Ao : Thanks! I'm looking forward to visiting your country!

Nao : After I listened to Ao's speech, I think visiting the Sagrada Familia sounds fun.

Ao : I'm really happy to hear that!

Rui : I also think new technologies are excellent. I want to make something with them. By using 3D printers, we can build something that people in the old days couldn't, right?

Sam :

あ

Ao :

い

Kei :

う

Nao :

え

Ao :

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Nao : Japan has many earthquakes, and many houses are built near each other, but with the new technologies, we don't have to worry about fire too much. New technologies are great!

Kei : How nice! Do you want to make something with new technologies?

Nao : Yes! I want to create something which helps a lot of people by using new technologies.

Ao : I agree! As a first step, how about making something with a 3D printer at school?

Kei : We have one at school? ②I want to make 3D models with it!

Sam : Me too!

Kei : I'm going to ask our teacher when we can use it.

Sam : That's cool! Well, let's have fun at "Japan's Sagrada Familia" today!

* construction : 工事 Catholic : カトリックの architect : 建築家

World Cultural Heritage Site : 世界文化遺産 burned : burn ~ (～を燃やす) の過去分詞

the Spanish Civil War : スペイン内戦 (1936～1939) hid : hide ~ (～を隠す) の過去形

military : 軍の the Catholic Church : カトリック教会 complicated : 複雑な

impossible : 不可能な curved : 曲がっている twisted : ねじれた surfaces : 面

shape : 形

(7) 会話文中の A ～ C にあてはまるものの組み合わせとして最も適するものを、次の 1～8 の中から一つ選び、その番号を答えなさい。

- | | | |
|-----------------|---------------------|--------------------|
| 1. A : safe | B : supported | C : Spanish people |
| 2. A : safe | B : supported | C : foreign people |
| 3. A : safe | B : did not support | C : Spanish people |
| 4. A : safe | B : did not support | C : foreign people |
| 5. A : not safe | B : supported | C : Spanish people |
| 6. A : not safe | B : supported | C : foreign people |
| 7. A : not safe | B : did not support | C : Spanish people |
| 8. A : not safe | B : did not support | C : foreign people |

(イ) ー 線①の意味として最も適するものを、次の 1～8 の中から一つ選び、その番号を答えなさい。

- | | | | |
|----------|-------------|-----------|-----------|
| 1. 平行の位置 | 2. 垂直に交わる位置 | 3. 線対称の位置 | 4. 点対称の位置 |
| 5. 任意の位置 | 6. 原点の位置 | 7. 対角線の位置 | 8. ねじれの位置 |

(ウ) 会話文中の あ ～ お にあてはまるものを次の a～e の中から選んだときに、組み合わせとして最も適するものを、あとの 1～9 の中から一つ選び、その番号を答えなさい。

- a I know the building, too. It's only five minutes away by train.
 b Oh, you also know the building! It's a tall fireproof building made of wood.
 c Oh, I know a building. People built it with new technologies.
 d Certainly! I think it's amazing to create many things with new technologies.
 e Where is it?

- | | | | | |
|----------|-------|-------|-------|-------|
| 1. あ : c | い : a | う : e | え : d | お : b |
| 2. あ : c | い : b | う : d | え : e | お : a |
| 3. あ : c | い : b | う : e | え : a | お : d |
| 4. あ : c | い : d | う : a | え : e | お : b |
| 5. あ : d | い : a | う : b | え : c | お : e |
| 6. あ : d | い : a | う : b | え : e | お : c |
| 7. あ : d | い : c | う : b | え : e | お : a |
| 8. あ : d | い : c | う : e | え : a | お : b |
| 9. あ : d | い : e | う : c | え : b | お : a |

- (エ) — 線②について、後日 Kei たちは、3Dプリンタを使って水に浮かぶ模型をつくらうとした。Kei が考えた次の内容 a～c のうち、**会話文**とあとの**資料**、**表**から判断して、正しいといえるものを正、そうでないものを誤としたときの組み合わせとして最も適するものを、1～8の中から一つ選び、その番号を答えなさい。ただし、つくる模型の形状、大きさはすべて同じものとする。

- a ポリエチレンの性質をいかすと軽い模型をつくることができる。また、3Dプリンタを使うことによって試作がしやすくなる。
- b ポリ塩化ビニルは硬い物質であるため、頑丈な模型をつくることができる。また、3Dプリンタを使うことによって複雑な形をつくることができる。
- c ポリエチレンテレフタレートは水に浮く物質であるため、製作した模型も水に浮かせることができる。また、3Dプリンタを使うことによって模型の製作費用を抑えることができる。

資料 3Dプリンタの特徴

- ・試作品や模型を手軽に製作でき、従来の方法と比べて工程や費用の削減ができる。
- ・必要な分だけ製作が可能だが、成形に時間を要するため、一度に多くは製作できない。
- ・使用する材料によって、成形されたものの特性が変わる。

表 材料となるプラスチックの性質

名称	密度 [g/cm ³]	硬さ
ポリエチレン (PE)	0.92～0.97	やわらかい
ポリ塩化ビニル (PVC)	1.20～1.60	硬い
ポリエチレン テレフタレート (PET)	1.38～1.40	硬い

- | | |
|----------------------------|----------------------------|
| 1. a : 正 b : 正 c : 正 | 2. a : 正 b : 正 c : 誤 |
| 3. a : 正 b : 誤 c : 正 | 4. a : 正 b : 誤 c : 誤 |
| 5. a : 誤 b : 正 c : 正 | 6. a : 誤 b : 正 c : 誤 |
| 7. a : 誤 b : 誤 c : 正 | 8. a : 誤 b : 誤 c : 誤 |

- (オ) 次のX～Zについて、**会話文**の内容に合っているものを正、そうでないものを誤としたときの組み合わせとして最も適するものを、あとの 1～8の中から一つ選び、その番号を答えなさい。

X Ao knows a lot about European and Japanese buildings and all the students were interested in Ao's talking about the Sagrada Familia, so they decided to go to see the building together and they asked Ao to lead them.

Y All the students think new technologies are good. Some of them think so, because people can now build difficult things like the Sagrada Familia. Also, all the students want to make something by using new technologies.

Z The Sagrada Familia in Spain is a World Cultural Heritage Site. The building has complicated parts like curved surfaces, so it was very difficult to build it in the old days. Now, the construction of the main tower will be finished soon with the help of new technologies like 3D printers.

- | | |
|----------------------------|----------------------------|
| 1. X : 正 Y : 正 Z : 正 | 2. X : 正 Y : 正 Z : 誤 |
| 3. X : 正 Y : 誤 Z : 正 | 4. X : 正 Y : 誤 Z : 誤 |
| 5. X : 誤 Y : 正 Z : 正 | 6. X : 誤 Y : 正 Z : 誤 |
| 7. X : 誤 Y : 誤 Z : 正 | 8. X : 誤 Y : 誤 Z : 誤 |