

P19 ×

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P20

もんだい  
問題9

(1)

ちゅう

(注1)

せいご かけい  
正五角形 = equilateral pentagon /

いつ へん なが  
五つの辺の長さ = the length of five straight sides /

が <subject particle> /

ひと  
等しい = equal, same, identical; able, capable /

ご かけい  
五角形 = pentagon /

the pentagon whose lengths of five straight sides are equal

(注2)

か べん はな  
花卉 = 花びら = petal

-----  
い ぜん  
以前、 = ago, before, previously /

はな み と き  
花見をしている時に = when (X) am seeing the cherry blossoms, when (X) was seeing the  
cherry blossoms /

さくら はな  
桜の花 = cherry blossoms /

は <topic particle> /

ほんとう  
本当に = really, truly /

きれいな せいご かけい  
きれいな正五角形だ = <plain-style-nonpast-affirmative> ofきれいな正五角形です = (X) is an  
equilateral pentagon. /

ね <confirmation particle> /

と <quotation particle> /

い  
言ったら、 = if (X) say, when (X) say (said), after (X) say (said) /

ふ ぜい ひと  
風情のない人だ = <plain-style-nonpast-affirmative> of 風情のない人です = You don't know

how to appreciate a tasteful thing

ふ ぜい  
風情 = appearance, air, taste, elegance, entertainment, hospitality

風情のある = tasteful, tasty, exhibiting good taste /

と <quotation particle> /

笑わらわれた = <plain-style-past-affirmative> of 笑わらわれます (be laughed (by a person)) which is the passive-verb of 笑わらいます g1 (laugh, smile) /

ことがあった。 = <plain-style-nonpast-affirmative> of ことがありました = had ever done ~ //

When I said, 'The shape of a cherry blossom is really a beautiful equilateral pentagon' when I was seeing the cherry blossoms, I had ever laughed by my friends before. They said that I didn't know how to appreciate a tasteful thing.

-----  
たし  
確たしかに = surely, certainly, definitely, confidently /

さくら はな  
桜さくらの花はなびら = petals of cherry blossoms /

に /

は <topic particle> /

びみょう いろ あ  
微妙びみょうな 色いろ合あい = subtle hue (tinge, tint) /

や = etc /

かたち  
形かたち、 = shape /

そして、 = and /

かお  
香かおり = aroma, fragrance, scent, smell /

くわ  
に 加くわえて、 = in addition to ~ N2 No.63 /

ち  
散ちりゆく = 散ちります g1 = fall, scatter 🥲 /

うつく  
美うつくしさ = beauty /

が <subject particle>

ある。 = <plain-style-nonpast-affirmative> of あります g1 = there is ~, have ~ //

Surely, petals of cherry blossoms have a subtle hue, shape, sent and, in addition, they have a beauty of falling. 🥲

-----  
花

を <direct-object particle>

め  
愛めでる = <plain-style-nonpast-affirmative> of 愛めめます g2 = love, admire /

はいく わか  
俳句はいく や 和歌わか = haiku poetry (17-syllable poem usually in 3 lines of 5, 7 and 5 syllables), 31

syllable poem, etc /

は <topic particle> /

かずかぎ  
数かずかぎ限かぎりない = unlimited, infinite, limitless, boundless, unrestricted /

が、 = but, /

その なか = inside that /

に <existence particle> /

「<sup>せいご</sup> <sup>かっけい</sup> 正五角形」という <sup>ことば</sup> 言葉 = the word which is 'equilateral pentagon'

が <subject particle> /

<sup>つか</sup> 使われたことはおそらく <sup>いちど</sup> 一度もない = <plain-style-nonpast-affirmative> of 使われたことは  
おそらく 一度もありません = Perhaps (X) has never been used before

\*[ta-form] ことがあります = have ever done ~ before /

であろう。 = is more formal than だろう which is the plain-style of でしょう = 1. Probably .....

2. ...., right? //

There are the countless number of WAKA and HAIKU who admire and love flowers (cherry blossoms), but among there poems, probably the word which is 'an equilateral pentagon' will have never been used before.

-----  
<sup>かがくしゃ</sup> 科学者 = scientist /

<sup>とくゆう</sup> 特有 = characteristic (of), peculiar (to) /

の <possession particle> /

<sup>びいしき</sup> 美意識 = sense of beauty, aesthetic sense /

→ 科学者特有の美意識 = the sense of beauty which is peculiar to a scientist

は <topic particle> /

<sup>ふりゆう</sup> 風流 = elegance, taste, refinement, dignity, distinction /

と

は <topic particle> /

かなり = considerably, fairly, quite, very /

<sup>いしつ</sup> 異質なものなのだ = <plain-style-nonpast-affirmative> of 異質なものなのです = (X) is the  
thing which is different (from ~)

異質 = heterogeneous /

と <quotation particle> /

<sup>さと</sup> 悟った。 = <plain-style-past-affirmative> of 悟ります g1 (attain enlightenment, perceive,  
understand, discern)

I perceived that the sense of beauty which is peculiar to a scientist was quite different from  
'elegant, tasteful, refined'.

-----  
<sup>かがく</sup> 科学において = in the field of science N2 No.3 /

<sup>ほんしつ いがい</sup> 本質以外 = except for essence (true nature, reality)

を <direct-object particle> /

<sup>きす</sup> 切り捨てるために = in order to truncate (cut down, omit, discard, slay, cast away) /

は <topic particle>

\* 切り捨てます g2 = truncate, cut down, omit, discard, slay, cast away

だいたん  
大胆な = adventurous, bold, daring /

ちゅうしやう か  
抽象化 = abstraction /

and /

りしやう か  
理想化 = idealization

が <subject particle> /

ひつやう  
必要である。 = <plain-style-nonpast-affirmative> of 必要であります = (X) is necessary //

Adventurous abstraction and idealization are necessary in order to discard the things except for essence in the field of science.

-----

さくらの花びらのたくさんの特徴とくちやう なかの中から = from many characteristics (features) of

petals of cherry blossoms /

「正五角形せいごかくけい」という形かたち = the shape which is ‘an equilateral pentagon’

だけ = only /

を <direct-object particle> /

と だ  
取り出す こと = to take out (pick out), taking out (picking out)

\* 取り出します g1 = take out, pick out

To take only the shape which is ‘an equilateral pentagon’ out from many characteristics (features) of petals of cherry blossoms.

-----

これ = this /

が <subject particle> /

ちゅうしやう か  
抽象化である。 = <plain-style-nonpast-affirmative> of 抽象化であります = (X) is abstraction. /

This is abstraction.

-----

じっさい  
実際に = in fact, actually; virtually, practically, in practice, currently, presently /

すうがくてき い み  
数学的な意味で = in mathematical meaning /

かんぜん せいごかくけい  
完全な正五角形 = perfect true equilateral pentagon /

を <direct-object particle> /

しめ  
示す = <plain-style-nonpast-affirmative> of 示します g1 = denote, show, point out, indicate /

はな  
花びら = petal /

→ the petal which shows a perfect equilateral pentagon in mathematical meaning

は <topic particle> /

<sup>すく</sup>少ない = few, little, not many, some /

だろう = <plain-style-nonpast-affirmative> of でしょう = 1 Probably ....., 2 ....., right? /

が = but, /

そこ = that place, there /

に /

は <topic particle> /

あまり = (not) so, (not) really, (not) much /

こだわらない。 = <plain-style-nonpast-negative> of こだわります g1 (fuss over, be particular about, be concerned about) //

Probably there will not be many petals which show a perfect equilateral pentagon in mathematical meaning in fact, but I don't stick to that point.

-----

これ = this

が <subject particle> /

<sup>りそうか</sup>理想化である。 = <plain-style-nonpast-affirmative> of 理想化であります = (X) is idealization. /

This is realization.

-----

<sup>しぜんかい</sup>自然界 = nature, the natural world, realm of nature /

で <particle which shows the place where the action takes place.> /

<sup>せいご</sup>正五角形 <sup>かっけい</sup>の <sup>よう</sup>な <sup>たいしょうせい</sup>対称性 = symmetry (exact correspondence between parts on either side of a central line) like an equilateral pentagon /

を <direct-object particle> /

<sup>しめ</sup>示す <sup>ため</sup>に = in order to denote (show, point out, indicate)

\* 示します g1 = denote, show, point out, indicate /

は <topic particle> /

<sup>かなら</sup>必ず = necessarily, certainly, without fail, positively, invariably /

<sup>きそくてき</sup>規則的 <sup>ほうそく</sup>な 法則 = systematic (methodical; regular, occurring at fixed intervals; routine) law

(rule) /

が <subject particle> /

はずである。 = <plain-style-nonpast-affirmative> of はずであります that is more formal than はずです = I am sure that ~, be supposed to ~, should ~ //

In order to show the symmetry such as an equilateral pentagon in the natural world, there should be the systematic rule without fail.

-----  
はな ばあい  
花 の 場合、 = in the case of flowers /

ひんしゅ  
品種 に よって = depending on a kind, according to a kind N2 No.13D /

かべん  
花卉 = petal /

の <possession particle> /

かいてんたいしゅうせい  
回転 対称 性 = symmetry of rotation (revolution, turning) /

が <subject particle> /

いでんし  
遺伝子 で = by means of genes /

けってい  
決定 されて いる こと = the fact that (X) is decided /

は <topic particle> /

まちが  
間違いない = <plain-style-nonpast-affirmative> of 間違ありません = I have no doubt that ~, it is certain that ~ N2 No.103 No.104 /

から、 = because ~ /

うまく = 上手く = nicely, well, okay; successfully; ably, proficiently 旨く = skillfully, ably, knowingly, masterly, like an expert, well, cleverly, aptly; deliciously /

この いでんし  
この 遺伝子 = this gene /

を <direct-object particle> /

つ  
突きとめられれば、 = if (X) can determine (esp. a culprit or underlying cause) (pin down, make sure, locate, identify, find out, ascertain) \*potential-verb + conditional-form / if (X) is determined (is pinned down, is made sure, is located, is identified, is found out, is ascertained) \*passive-verb + conditional-form

\* 突きとめます g2 = determine (esp. a culprit or underlying cause), pin down, make sure, locate, identify, find out, ascertain /

はな かたち  
花 の 形 = the shape of flowers /

を <direct-object particle> /

き  
決める = <plain-style-nonpast-affirmative> of 決めます g2 = decide, rule, resolve, conclude, make a decision /

ふへんてき ほうそく  
普遍的 な 法則 = universal (general, worldwide, comprehensive) law (rule) /

→ the universal law which decides the shape of flowers /

が <subject particle> /

み  
見つかる = <plain-style-nonpast-affirmative> of 見つかります g1 = be discovered, be found /

に ちが  
に 違いない。 = <plain-style-nonpast-affirmative> of に 違ありません = I have no doubt that ~, it is certain that ~ N2 No.104 /

If we can identify this gene successfully, it is certain that the universal law which decides the shape of flowers is discovered.

このように、= in this way,

ちゆうしようか りそうか  
抽象化と理想化によって = by means of abstraction and realization N2 No.13C /

しぜんげんしょう  
自然現象 = natural phenomena /

は <topic particle> /

たんじゆん  
単純に = simply /

せいり  
整理でき = can arrange (can put in order, can dispose) and .....

\*masu-form + potential-verb of せいり整理します g2 (arrange, put in order, dispose)

\*Both te-form and masu-form can be used to join sentences, but masu-form one is more formal.

ふへんてき ほうそく  
普遍的な法則 = universal (general, worldwide, comprehensive) law (rule) /

を <direct-object particle> /

み  
見つける = <plain-style-nonpast-affirmative> of 見つけます g2 = find out, discover, gain

knowledge; locate, sight /

たす  
助けになる。<plain-style-nonpast-affirmative> of 助けになります。 = (X) become a help (aid, rescue, assistance) //

We can dispose natural phenomenons simply by abstraction and realization in this way, and it will help us to find the universal law. //

さかいくによし  
酒井邦嘉？

かがくしゃ しごと  
「科学者という仕事」 = the job which is 'a scientist'

ちゅうおうこうろんにいしゃ  
中央公論新社による = (published) by Chuu Ou Kou Ron Shin Shan //

□49

ひっしゃ  
筆者 = author, writer /

は <topic particle> /

じぶん  
自分 = oneself /

が <subject particle> /

わら  
笑われた = <plain-style-past-affirmative> of 笑われます (be laughed, be smiled) which is the

passive-verb of わら笑います g1 (laugh, smile) /

げんいん  
原因 = cause, factor; origin, source

→ the cause which the speaker was laughed

どこにある = <plain-style-nonpast-affirmative> of どこにありますか = where is (X)?, where does (X) exist? /

と <quotation particle> /

<sup>かんが</sup>考えているか。 = <plain-style-nonpast-affirmative> of 考えていますか。 = Is (X) considering?, Is (X) thinking over? //

According the author, what is the cause that he was laughed?

-----

1

<sup>かがくしゃ</sup>科学者 = scientist /

らしくない = be not like ~, be unlike ~, be not characteristic of ~ /

<sup>おもむき</sup>趣のある = zestful, tasteful, elegant

\*趣 = meaning, gist, main point; knowledge, something that is known; taste, sense; atmosphere, tone or mood of a place or thing /

<sup>ひょうげん</sup>表現で = by means of the expression /

<sup>さくら はな</sup>桜の花 = cherry blossoms /

を <direct-object particle> /

<sup>ほ</sup>褒めた = <plain-style-past-affirmative> of <sup>ほ</sup>褒めます g2 (praise, admire, speak well) /

<sup>てん</sup>点 = spot, mark, point, dot; number of items identifier; score identifier; particular point identifier //

the point where he praised cherry blossoms with the elegant (tasteful) expression which is not characteristic of a scientist to use 🙄

the point where he praised cherry blossoms with the elegant (tasteful) expression which is unlike a scientist to use 🙄

-----

2

<sup>じぶん</sup>自分 = oneself /

が <subject particle> /

<sup>さくら うつく</sup>桜の美しさ = beauty of cherry blossoms /

を <direct-object particle> /

<sup>りかい</sup>理解できていなかった = <plain-style-past-negative> of 理解できています (can understand now, can comprehend, can realize, can grasp the meaning of) \*potential-verb + te-form います

\*理解します = understand, comprehend, realize, grasp the meaning of /

<sup>てん</sup>点 = spot, mark, point, dot; number of items identifier; score identifier; particular point identifier //

the point where he couldn't comprehend the beauty of cherry blossoms



-----  
3

さくら はな  
桜の花 = cherry blossoms /

は <topic particle> /

じぶん  
自分 = oneself

が <subject particle>

の  
述べた = <plain-style-past-affirmative> of 述べます g2 (describe, say, state, express, mention) /

かたち  
形 = shape, form, figure, type /

→ the shape which the speaker described

を <direct-object particle> /

してなかった = <plain-style-past-negative> of しています (be doing now) /

\* Xは ~ (の) 形をしています = (X) have the shape of ~

てん  
点 = spot, mark, point, dot; number of items identifier; score identifier; particular point identifier //

the point where cherry blossoms didn't have the shape as he described

-----  
4

さくら うつく  
桜の美しさ = beauty of cherry blossoms /

を <direct-object particle> /

かがくしゃてき してん  
科学者の視点から = from a scientist-like point of view 🥲 /

かがくしゃてき  
\*科学的 = scientist-like /

ひょうげん  
表現した = <plain-style-past-affirmative> of 表現します g3 (express) /

てん  
点 = spot, mark, point, dot; number of items identifier; score identifier; particular point identifier //

the point where he expresses the beauty of cherry blossoms from a scientist-like point of view.



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□50

ここ = here, this place /

で <particle which shows the place where the action takes place.> /

の <possession particle> /

りそうか  
理想化とは = 理想化 というの は = the thing called 'realization' + は <topic particle> /

何か。 = <plain-style-nonpast-affirmative> of 何なんですか。 = what is (X)? //

What does 'realization' mean in this passage?

-----

1  
桜さくら はなの花 = cherry blossoms /  
は <topic particle> /  
どれも = any ~, no matter which ~ /  
正五角形せいごかくけいである = <plain-style-nonpast-affirmative> of 正五角形であります = (X) is an  
equilateral pentagon /  
と <quotation particle> /  
みなす こと = to consider as, to regard, considering as, regarding  
\*みなします g1 = consider as, regard //

to regard any cherry blossom as an equilateral pentagon

-----

2  
桜さくら はなの花 = cherry blossoms /  
に <existence particle> /  
は <topic particle> /  
共通きょうつうする = <plain-style-nonpast-affirmative> of 共通します g3 = have ~ in common  
特徴とくちょう = feature, characteristic /  
が <subject particle> /  
ある = <plain-style-nonpast-affirmative> of あります g1 = have, there is /  
と <quotation particle> /  
みなす こと = to consider as, to regard, considering as, regarding  
\*みなします g1 = consider as, regard //

to consider that cherry blossoms have common characteristics

-----

3  
桜さくら はなの花 = cherry blossoms /  
に <existence particle> /  
は <topic particle> /

すうがくてき うつく  
数学的な 美しさ = mathematical beauty

が <subject particle> /

ある = <plain-style-nonpast-affirmative> of あります g1 = have, there is /

と <quotation particle> /

かんが  
考える こと = to consider, to think over, considering, thinking over

\*考えます g1 = consider, think over //

to consider that there is a mathematical beauty in a cheery blossom

-----

4

さくら はな  
桜の花 = cherry blossoms /

は <topic particle> /

どの <sup>はな</sup>花 より も = than any other flower /

せい <sup>かけい</sup> <sup>ちか</sup>  
正五角形に 近い = be close to an equilateral pentagon /

と <quotation particle> /

かんが  
考える こと = to consider, to think over, considering, thinking over

\*考えます g1 = consider, think over //

to consider that a cherry blossom is closer to an equilateral pentagon than any other flower

-----

□51

ひっしや <sup>かんが</sup>  
筆者の 考え によると、 = According to the author's thinking, N2 No.14

はな <sup>ばあい</sup>  
花の 場合、 = in the case of a flower,

ちゅうしやう <sup>か</sup> <sup>りそう <sup>か</sup></sup>  
抽象化と理想化によって = by (means of) abstraction and realization N2 No.13C

なに  
何 = what /

が <subject particle> /

きたい  
期待される = <plain-style-nonpast-affirmative> of 期待されます = be expected \*passive-verb

of 期待します g3 = expect, hope /

か。 <question particle> //

According the author's thinking, in the case of a flower, what will be expected by abstraction and realization?

-----

1

はな  
花 = flower /

に <existence particle> /

は <topic particle> /

ひんしゅ  
品種 = brand, kind; description /

を <direct-object particle> /

こ  
越えた = <plain-style-past-affirmative> of 越えます g2 (exceed, cross over, cross, pass through, pass over (out of))

きょうつうてん  
共通点 = common feature, commonality, sharing of common features; shared characteristic) /

→ the common feature which cross over a kind

が <subject particle> /

ある こと = the fact that there is ~, the fact that (X) have ~

が <subject particle> /

あき  
明らかになる こと = that (X) become obvious (evident, clear, plain), becoming obvious (evident, clear, plain)

\*Here 'koto' is use to make a noun phrase (to change a verb to a noun).

\* [the stem of i-adjective] くなります, [the stem of na-adjective / noun] になります = become ~, get ~, turn ~ //

(It is expected) that the fact that there are the common features which cross over a kind in flowers becomes clear. 😞

-----

2

しぜんかい  
自然界に = in the natural world

さ  
咲いている = <plain-style-nonpast-affirmative> of 咲いています = be blooming now

\*咲きます g1 = bloom /

はな うつく  
花の美しさ = beauty of flowers /

→ the beauty of flowers which are blooming in the natural world

に /

ふへんせい  
普遍性 = catholicity, universality /

が <subject particle> /

み  
見いだされる こと = that (X) is found out, that (X) is discovered

\*Here 'koto' is use to make a noun phrase (to change a verb to a noun).

\*見いだされる = <plain-style-nonpast-affirmative> of 見いだされず = be found out, be discovered \*passive-verb of 見いだします g1 = find out, discover //

(It is expected) that the universality is discovered in the beauty of flowers which are blooming in the natural world.

3

はな かたち  
花の形 = a shape of a flower /

が <subject particle> /

どの よう に = in what way, how /

き  
決まる = <plain-style-nonpast-affirmative> of 決まります g1 = be decided, be settled

か <question particle>

その しぐみ = that structure (construction, arrangement, contrivance, plan, plot, contrivance) /

が <subject particle> /

かいめい  
解明される こと = that (X) is solved

\*Here 'koto' is use to make a noun phrase (to change a verb to a noun).

\*解明される = <plain-style-nonpast-affirmative> of 解明されます = be solved \*passive-verb of

解明します g3 = solve, find a solution, find the answer to, explain, resolve //

(It is expected) that how the shape of flowers is decided (that structure) is solved. 🥲

4

はな かたち たいしょうせい  
花の形の対称性 = symmetry of the shape of flowers /

が <subject particle> /

いでんし  
遺伝子 による もの = the one which is by way of the genes N2 No.13B

である こと = the fact that (X) is ~

\*である = <plain-style-nonpast-affirmative> of であります = is, are, am, etc /

が <subject particle> /

しょうめい  
証明される こと = that (X) is proved (is demonstrated, is attested, is certified)

\*Here 'koto' is use to make a noun phrase (to change a verb to a noun).

\*証明される = <plain-style-nonpast-affirmative> of 証明されます = be probed \*passive-verb of

証明します g3 = prove, demonstrate, attest, certify //

(It is expected) that the fact that the symmetry of the shape of flowers is cause by a gene is proved.

----- the end of page 21 -----