Exam VSBO PBL

2025

period 1
Thursday May 15
7.30 - 9.30 a.m.

Mathematics

Candidate name _____ Candidate number _____

Write down all answers in this assignment booklet.
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This exam consists of 26 questions.
You can score a maximum of 59 points for this exam.
Before each question number it is stated how many points can be scored with a correct answer.

Multiple choice questions

– Circle the correct answer (example 1).
– Indicate corrections according to example 2 or 3.

(1) A (B) C D (2) A (B) (C) D (3) B A (B) (C) D

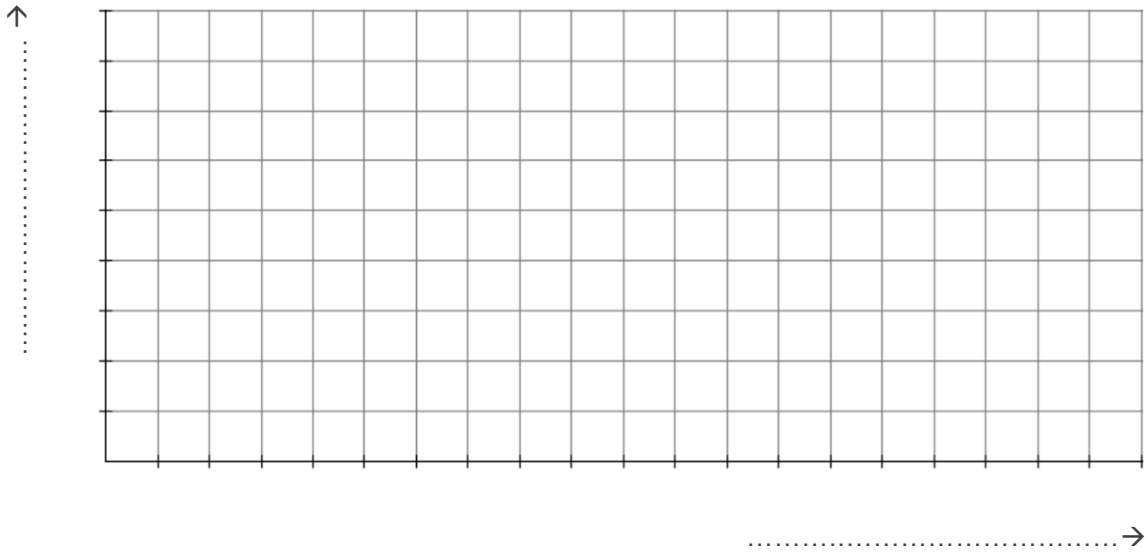
Juni

3p **1** Juni has a permanent job, but he does extra work on weekends. He washes cars. His fee is 15 guilders per car.

number of cars	1	2	3	4	5
income	15	30	45	60	75

The table shows the relation between the number of cars and the income. Juni is not sure whether the graph that belongs to the table is a line graph, a dot graph, or a step graph.

→ Draw the graph that belongs to this table in the coordinate system below. Write the numbers and the correct names next to the axes.



2p **2** Every weekend Juni buys new cleaning products that, all together, cost 35 guilders.

cleaning products

Profit:
Juni calculates his weekend profit as follows.
First, he calculates his weekend income and from that he deducts his expenses.

Part of the word formula that Juni uses to calculate his profit is shown below.

→ Complete this word formula below correctly.

profit = ... **×** ....

3p **3** Juni has now hired his cousin Bèno to vacuum the cars.
Juni has promised to pay Bèno according to the word formula below.

Bèno's wages = 2 × number of cars + 2.50

As an example, Juni created a table.

number of cars	1	2	3	4
Bèno's wages	4.50	6.50	9.50	10.50

→ Check whether Juni's table is correct. Write down your calculations and your conclusion below.

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Conclusion: Juni's table ..... correct

2p **4** June also washes buses. The table below shows Juni's profit for washing a number of buses.

buses	6	8	10
profit in guilders	50	100	150

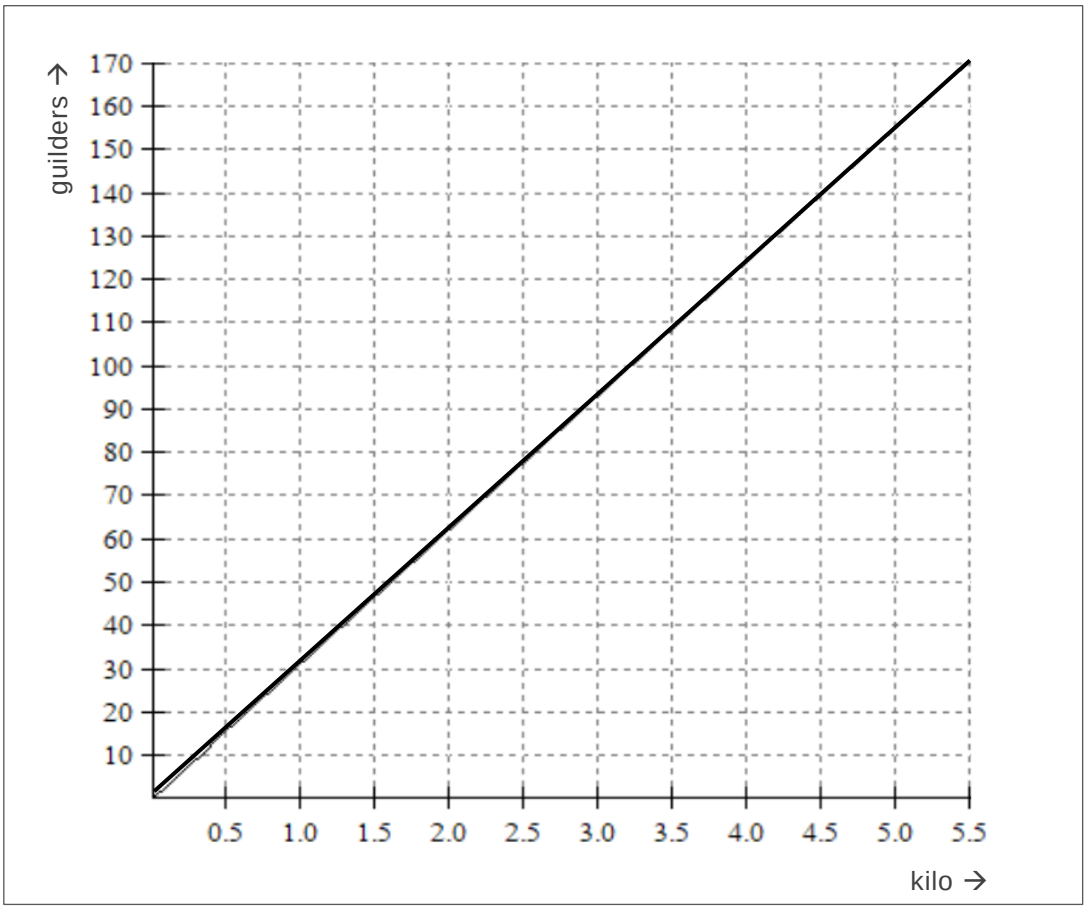
Below, there are three statements in a table.

→ In the table, indicate for each statement whether it is ***true*** or ***false***.
Do this with an X-mark.

statement	true	false
The relation in the table is linear.		
The slope number in the table is 50.		
The profit from washing 16 buses is 300 guilders.		

Red snapper

3p **5** Government has set a fixed price per kilo for red snapper. The graph below corresponds to this fixed price per kilo.



Charlie sells red snapper. Three of Charlie's sales are listed below.

A: 2 kilos of red snapper for 62 guilders.

B: 5 kilos of red snapper for 155 guilders.

C: ½ kilo of red snapper for 15.50 guilders.

Charlie obeys the government rule.

→ Plot these three sales in the graph above. Use them to explain why Charlie is obeying the government rule.

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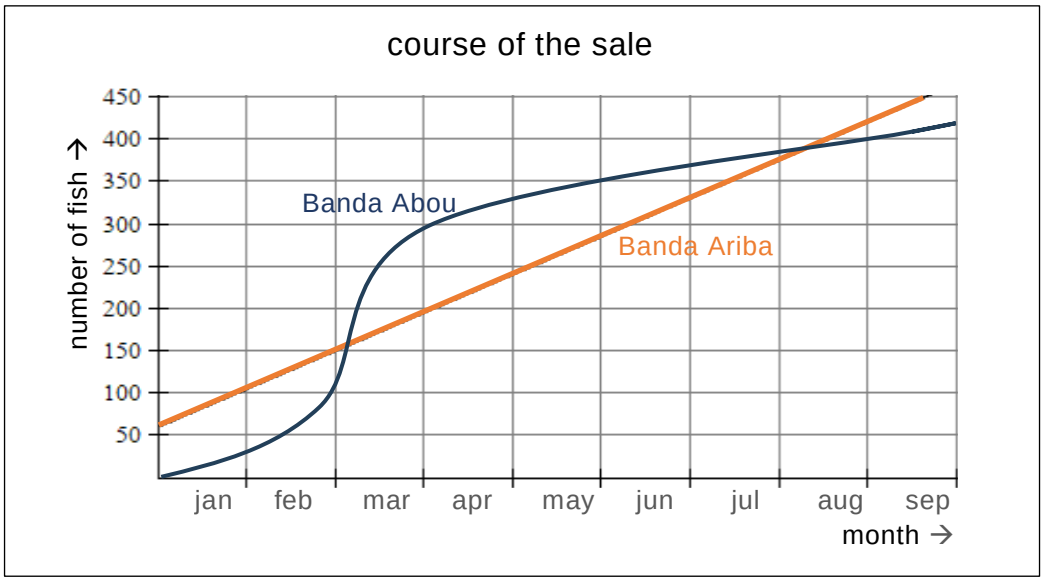
2p **6** Charlie doesn't sell every day. Only on ***Tuesdays***, on ***Fridays*** and sometimes on ***Saturdays***.
The table below shows Charlie's sales in the month of April.

date	2-4	5-4	6-4	9-4	12-4	16-4	19-4	20-4	23-4	26-4	30-4
kilos	12	8	16	9	16	15	5	18	10	19	14

→ Complete the sentence below correctly.

Charlie's biggest sale was on April ..... and that date fell on a ..... .

1p **7** Charlie sells fish at two locations, one location in Banda Ariba and another location in Banda Abou. The graphs below show the course of the sale at both locations, during the first 9 months of the year.



→ What applies to the course of the Banda Abou graph?

The course of the Banda Abou graph is ..... .

A falling
B rising
C constant
D rising and falling

1p **8** These graphs have two intersections. Charlie and Remsis are having a little discussion about the meaning of an intersection.

Charlie says: "Point of Intersection means that the ***same amount of fish*** is sold in Banda Ariba as in Banda Bou.

Remsis says: "Point of Intersection means that the ***same amount of money*** is made in Banda Ariba as in Banda Abou".

→ Who is right?

A Charlie
B Remsis
C both
D neither

2p **9** The table below shows statements about the Banda Ariba and Banda Abou graphs.

→ For each statement, indicate whether it is **true** or **false**.
Do this with an X-mark.

statement	true	false
Fish sales are regular in Banda Ariba .		
The biggest difference between Banda Ariba and Banda Abou is at the end of January .		
The Banda Abou graph clearly shows the period in which Good Friday falls.		

Balia Bon dance school

1p **10** Anna has started taking dance lessons at Balia Bon dance school. The Dance school has various dance packages. The following applies to dance package A: four dance lessons in a month is ANG 60,- and each extra lesson costs ANG 10.
The word formula for monthly costs is:

costs = 10 x …….. + 60

→ Which variable must be filled in on the dots??

A monthly costs
B weekly costs
C extra lessons
D number of lessons

2p **11** Cindy takes dance package B. The following applies to dance package B: eight dance lessons in a month is ANG 90,- and each extra lesson costs ANG 7.50.
The word formula for calculating dance package B is:

monthly costs = 90 + extra lessons × 7.50

Cindy uses the word formula listed below.

monthly costs = 3 × (extra lessons × 2.50 + 30)

→ Check by calculation whether these two formulas **are** or **aren't** the same with 3 extra lessons. Write down your calculation.

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With 3 extra lessons, these two formulas …… the same.

1p **12** The formula for dance package B is repeated below.

monthly costs = 90 + extra lessons × 7.50

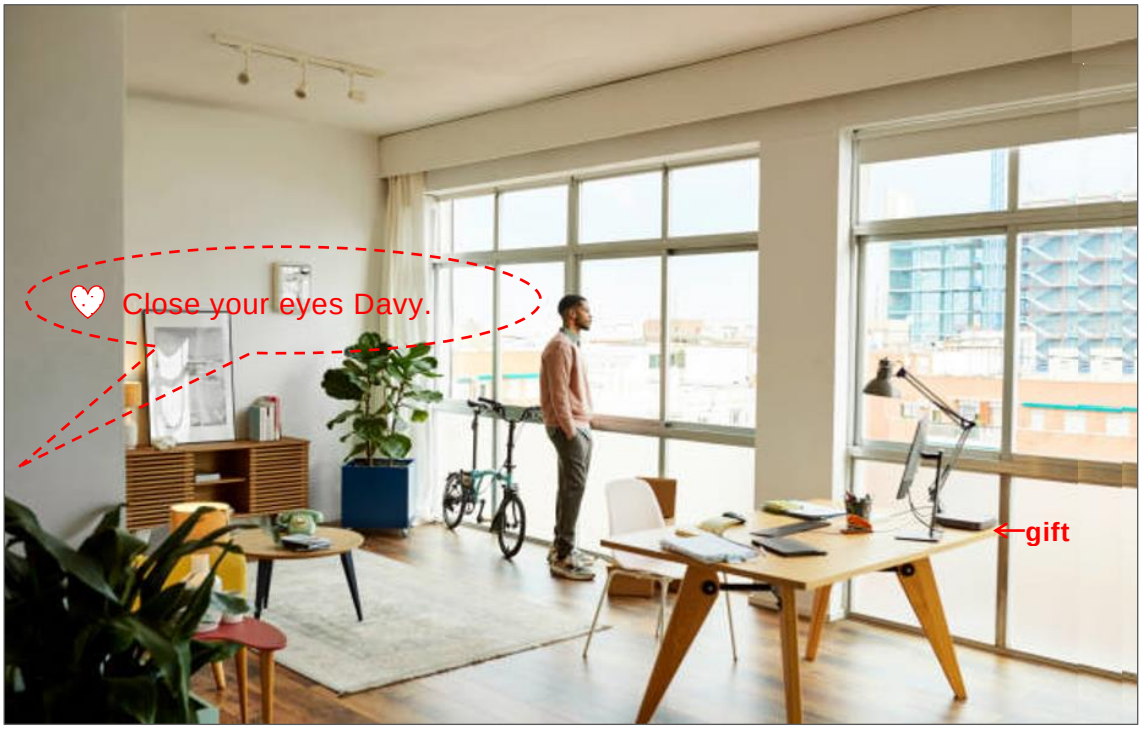
Cindy takes dance lessons for a whole year and extra lessons every month.

→ Based on this formula, create a new word formula to calculate the annual costs.

annual costs = ...

Davy

3p **13** Davy has been living in the Netherlands for 10 years now. He now wants to return to the Antilles.



He wonders whether he will also get an apartment with a high ceiling in the Antilles.

→ How high above the floor is the ceiling. Complete the ratio table.

	height in the picture		height in reality
Davy			

The ceiling is at a height of ....

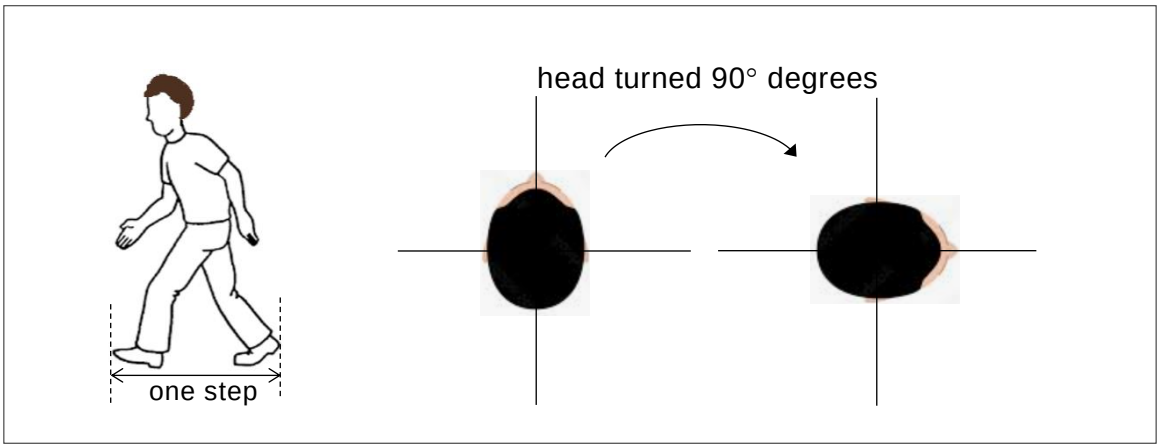
3p **14** Emmely, Davy's girlfriend, has placed a gift for Davy under a book. See the picture at question 13. Emmely says lovingly: “Close your eyes Davy, I'm going to guide you to a surprise.”
Below four types of instructions with which Emmely can guide Davy are listed.

1). Take **.....** step(s) forward.

2). Take **.....** step(s) backwards.

3). Turn your body 90° degrees.

4). Turn your body – 90° degrees.



With her instructions, she makes Davy walk with his eyes closed. From the spot where he now stands, he walks, **all the way around the table** and not past the window. According to her instructions, he walks all the way to the book that is on top of the gift on the table.

Below, there are the six instructions that Emmely gives to Davy.
Instructions 2, 4 and 6 are not complete.

→ Complete instructions 2, 4 and 6. Fill in the dots correctly.

<u>Instructions</u>:

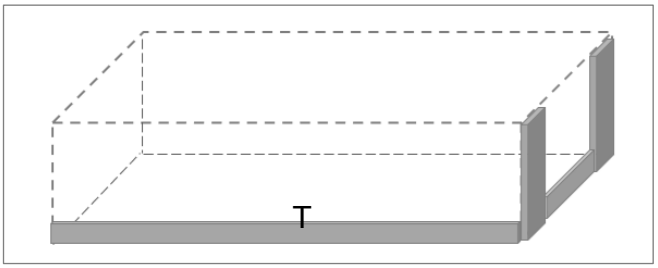
1. Turn your body 90°.
2. Take …… steps forward.
3. Turn your body -90°.
4. Take …… steps ……..
5. Turn your body 90°.
6. Walk ……..

1p **15** Emmely cannot be seen in the picture. But Davy can hear Emmely well.

→ Complete the sentence below correctly by estimating.

The distance between Emmely and Davy is between ….. m and …… m.

2p **16** To store his belongings temporarily, Davy has Myron make a wooden box as shown alongside.



The box must be: 4 meters long.
For slat T, Myron wants to buy a 14-foot length of wood.

1 foot = 12 inches = 30.48 cm.

→ Show by calculation whether 14 feet is sufficient length for slat T.
Write down your conclusion.

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4p **17** Myron calls the wood that he has bought a “T-slat”. The image below shows how Myron uses T-slats to close the front of the box. He nails the slats on top of each other one by one.

The width of one T-slat is 6 inches.
The height of the box will be 1.5 meters.

1 foot = 12 inches = 30.48 cm.

→ Calculate how many T-slats Myron needs for the front of the box.

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Number of T-slats needed is .....

Valentine

1p **18** For the Valentines Day celebration, the students of Arti School made 15 cakes, all in the shape of a heart. They made a total of 28 liters of batter. 3/8 of the batter was oil.

→ Calculate how many liters of oil were used to make batter.

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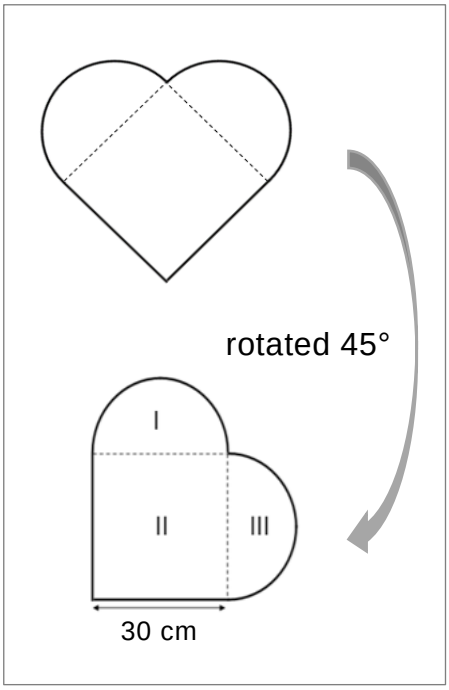
3p **19** The surface of the cake will be decorated with whipped cream. That is why they first calculate the area of the top of the cake.

Shamira has made the drawing below of the top of the cake. In this drawing, figure I and figure III are two equal semicircles.



Shamira says:
"We must use the following formula:

area circle = 3.14 × radius × radius

→ Calculate the area of the top of the cake.
For example, do it as follows:

Step 1: calculate the area of figure I.
Step 2: calculate the area of figure II.
Step 3: calculate the total area of the top of the cake.

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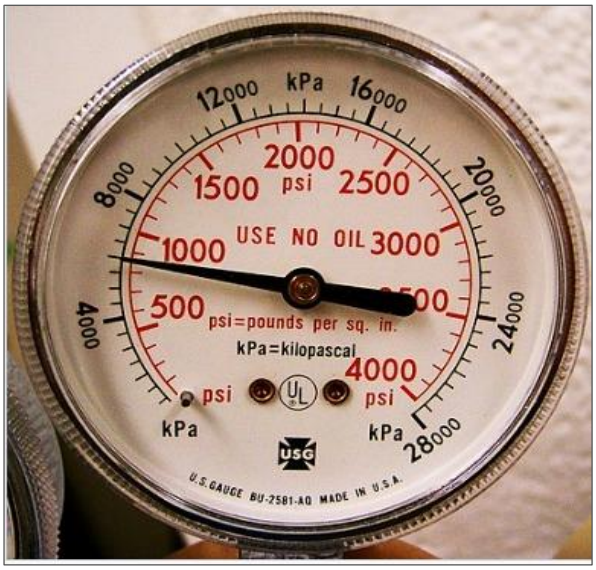
The divers

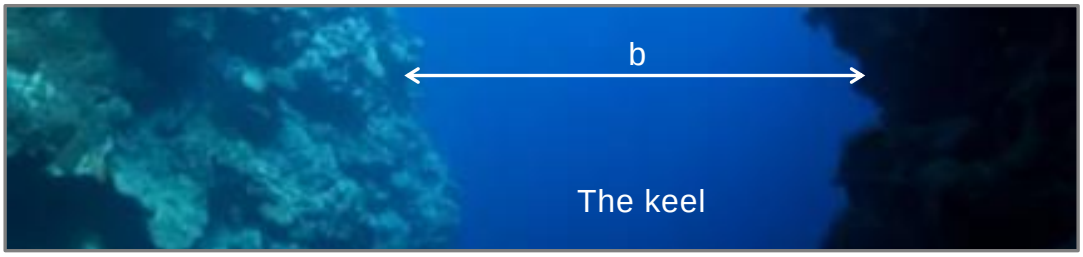
2p **20** Carlos is a professional diver. The following picture to the right shows Carlos's pressure gauge during a dive.



→ Read the red scale of this meter and also write down the unit.

pressure is …… ……. *unit*

2p **21** The Keel is a valley between two large rocks underwater. In the Keel, the width between the two sides becomes narrower as it goes deeper.
In the picture below, **b** is the average width of the Kiel.



This picture was made on a scale of 1:45.

→ Calculate the average width of the Keel in reality.
Round off to two decimals.

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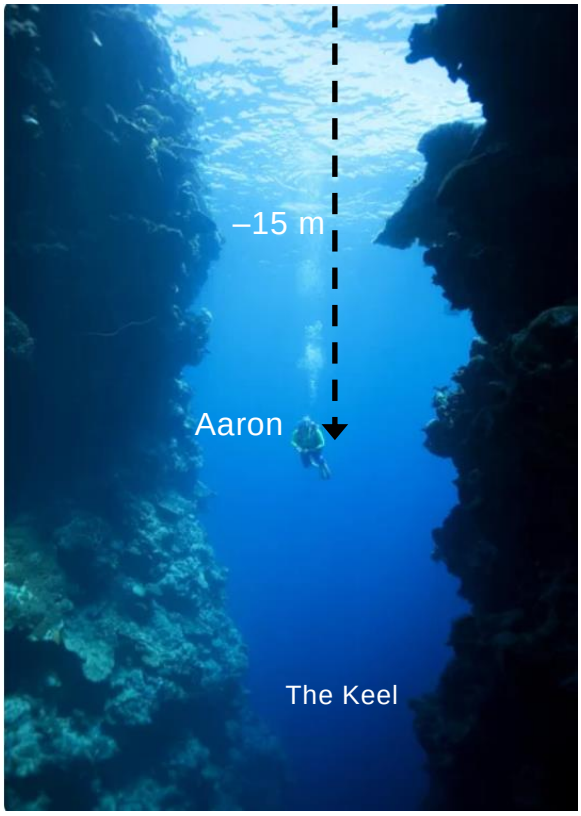
2p **22** There they go again. Aaron, Beto, Carlos and Dino, diving together.
Their end goal is to reach the bottom of the Keel.
The Keel is 27 meters deep.

The picture to the right shows Aaron. He is 15 meters below the surface of the water.
That is –15 m.
Carlos went the deepest**:** 5 meters deeper than Aaron.
Beto reached up to 1.5 m above Aaron.
The difference between Dino and Carlos was – 4 meters.

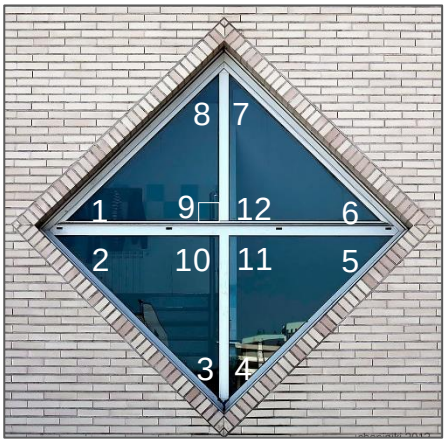


→ Complete the table below in the order of how deep each diver went.

diver's name	diving depth (in m)	distance from the surface of the water (in m)

The special window

4p **23** The picture to the right shows a special, symmetrical window. Twelve angles in the window are indicated with the numbers 1 to 12.



→ Fill in the special features of the window below.

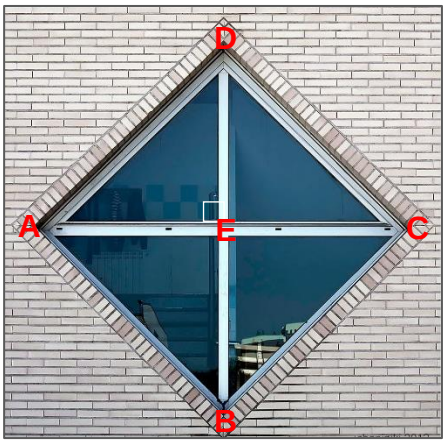
Angle 1 is ……. degrees.

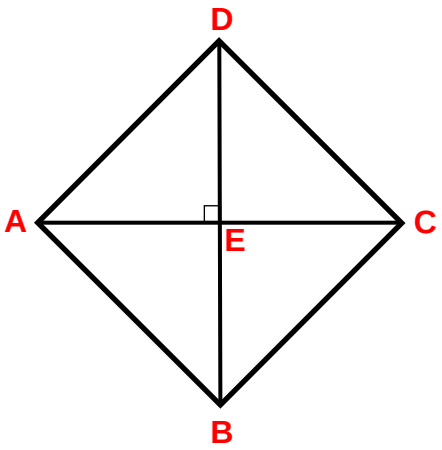
Angle 2 is ……. degrees.

Angle 1, 8 and 9 combined are ……. degrees.

Angle1 up to and including angle 12 combined are ……. degrees.

4p **24** In the illustration below, triangles AED and CED are two examples of right-angled triangles visible in the window.





Other triangles also appear in the illustration.

→ Write down with letters:

1). Three other right-angled triangles.

Triangle ……., triangle …….. and triangle ……...

2). Three isosceles triangles:

Triangle ……., triangle …….. and triangle ……..

3p **25** The following are two statements about the window.

→ Make each statement a true statement. Fill in the correct word or number.

number	statement
1.	The window has the shape of a ……
2.	You can draw in all a number of ……. axes of symmetry on the window.

2p **26** Diagonal AC of the window is 40 cm.

area triangle = ½ × base × height

→ Calculate in cm^2 the area of the window.

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