2020-2021 S5

Mathematics 4P

Date: 4th June 2021

Time: 8:45

Total duration of exam: 45 min
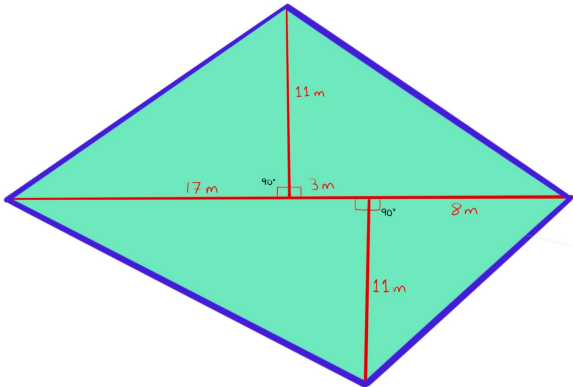
Teachers: Becker / Lindner / Nottridge

Total marks: 50

Authorized material aids: Scientific non programable calculator

Instructions to candidates:

- ✓ Answers must be supported by explanations.
- ✓ You must show the reasoning behind the results or solutions provided.
- ✓ If graphs are used to find a solution, they must be sketched as part of the answer.
- ✓ Unless indicated otherwise, full marks will not be awarded if a correct answer is not accompanied by supporting evidence or explanations of how the results or the solutions have been achieved.
- ✓ When the answer provided is not the correct one, still some marks can be awarded if it is shown that an appropriate method and/or a correct approach have been used.
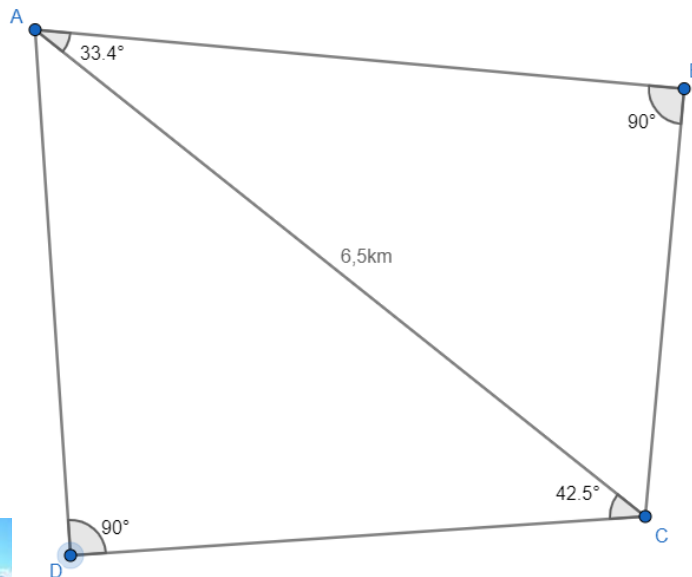- ✓ Round your answers to two decimal places

Question 1	**10p**

There are 30 days in November.
18 days had rain,
14 days had fog
and 7 days had neither fog nor rain.

a) Draw a Venn diagram or a two-way table that illustrates the situation	4

A day is selected at random

b) What is the probability that there is fog and it rains?	2
c) What is the probability that there is rain and no fog?	2
d) What is the probability that there was fog given that there was rain?	2

Question 2	**15P**

The following diagram is the shape of a big park in Bad Vilbel

a) How many meters of fence is required for the perimeter of the shape?	8
b) Find the area of the park.	7

Round your answers to one decimal place

Question 3	**15P**

The Becker family wants to go on a hike. For this purpose, Mr Becker made a sketch of the places that everyone would like to visit.
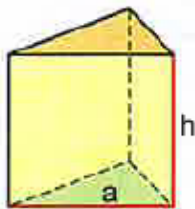

a) Calculate the distance from the oak (C) to the waterfall (B).

5

b) The children would rather go from the oak (C) to the lake (D) instead of the waterfall. They think this way is shorter. Are the children right? Justify your answer.

5

c) How long is the walk from the waterfall (B) to the castle (A) and then the lake (D)?

5

Question 4	**10P**
a) A triangular prism has height h=12cm. The base of the prism is an equilateral triangle with side length a=10cm. Calculate the surface area of the prism. 	5
b) A cylindrical tin can has a height of 10.2cm and a circumference of 22.4 cm. Calculate the volume of the tin can in mililiiters. 	5
Round to the nearest decimal place.	