



2020-2021 S5

Mathematics 4P

Date: 4th June 2021

Time: 12:15

Total duration of exam: 45 min

Teachers: Becker / Lindner / Nottridge

Total marks: 50

Authorized material aids: None

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

20P

Mr Maier is a maths teacher in a rural area. Most of his P1 students live on a farm. In order to teach the children how to count, he asks the class to write down the total number of animals on the farm as homework.

Name	Number of animals
Kim	16
Tim	19
Ali	18
Ben	47
Sue	12
Peter	18
Huge	18
Anna	19
Kira	17

Then he uses this information to test his S5 students in statistics, asking them to:

a) State the following values:

- i. The minimum and the maximum
- ii. The range
- iii. The median
- iv. The first quartile and the third quartile

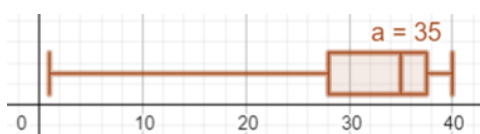
9

b) Draw a box plot for the number of animals.

4

c) Compare the box plot shown below to the one from part b). Make three statements based on the statistical parameters comparing the two box plots.

3



d) Calculate the mean of the following values:

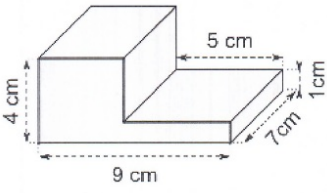
16,15,13,30,27,15,24

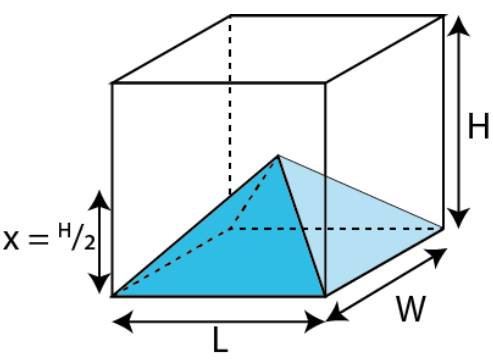
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e) Explain what is an outlier based on one of the previous examples.

1

Question 2	10p
<p>A bag contains 6 plastic counters, 4 red counters and 2 white counters. A counter is taken out from the bag, its colour recorded and it is not replaced. A second counter is taken from the bag and its colour recorded.</p> <p>a) Draw a tree diagram to show all the possible outcomes for this situation. b) Calculate the probability that both counters are red. c) Calculate the probability that both counters are red, given that the second counter was red.</p>	<p>4 2 4</p>

Question 3	10P
<p>Calculate the surface area of the following shape:</p> 	

Question 4	10p
<p>A solid is made by removing a pyramid from a cuboid. The cuboid has the dimensions: $H = 12 \text{ cm}$ $L = 4 \text{ cm}$ $W = 3 \text{ cm}$ The pyramid is half the height of the cuboid.</p> <p>a) Calculate the volume of the cuboid. b) Calculate the volume of the pyramid. c) Calculate, the volume of the solid.</p>	 <p>3 5 2</p>