

## MATHEMATICS TEST

### Year 9 – Part C

### Spring 2005

**The contents of this test material must remain *secret* until June 30, 2015.**

After each question the maximum total number of points possible for your solution is shown. For example (2/1) indicates that the question can give a maximum of 2 g-points and 1 vg-point. You may demonstrate MVG-quality in your solutions to questions marked with the symbol  $\alpha$ .

Almost all questions require complete solutions.

Merely a correct answer does not give any points except for the questions marked with *Only the answer is required*.

Your solution must be clear enough so that others can easily read and understand your reasoning. It is important that you show all your work since it is possible to obtain part of the points for a partial solution.

Aids: calculator, ruler.

Time: 80 minutes.

Name: \_\_\_\_\_

School: \_\_\_\_\_ Class: \_\_\_\_\_

Birth date: Year \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_

Girl ☐ Boy ☐

*All solutions and answers, except question 6 a and 6 b, must be written on separate paper. This question paper must be handed in together with your solutions.*

1. Martin wants to put tiling on the bathroom wall above the washbasin. The area to be tiled is  $60 \text{ cm} \times 40 \text{ cm}$ . How many tiles of dimension  $5 \text{ cm} \times 5 \text{ cm}$  does he need?

(2/0)

2. The pupils in a class hold a games competition with various activities. One contest was hammering a nail into a plank *with as few blows as possible*. The results can be seen in the table below.

a) Find the mean and the median.

(2/0)

b) Explain why the difference between the mean and the median is so great.

(0/1)

NAME	NUMBER OF BLOWS
GUSTAV	20
ERIK	21
AILI	6
MARIA	17
ANNA	7
LOVISA	9
MALIN	9
SARA	28
DAVID	27
KARL	11
MARKUS	7
ANNIKA	11
NIKLAS	9



3. Anna is going to make a necklace with beads of various colours. She uses beads with colours: red, blue, yellow and white. Half of the beads used in her necklace are white, one quarter are blue, one sixth are yellow and 4 beads are red. How many beads of each colour are needed?

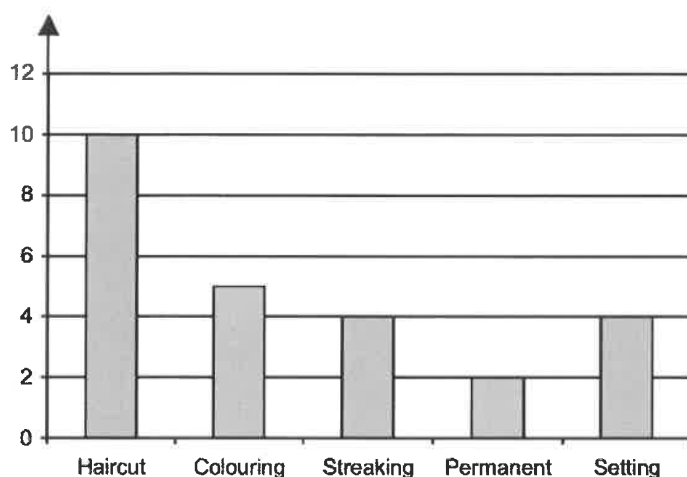
(2/1)

4. Three students in the hairdressing course are practising their techniques in the school's hairdressing salon. There the prices are lower than at regular hairdressers in town.

**Price list**

Haircut.....	120 kr
Colouring .....	210 kr
Streaking .....	220 kr
Permanent .....	300 kr
Setting .....	80 kr

One day the three students had 18 customers. The diagram shows how many of the different treatments they gave the customers.



- a) What fraction or percent of all the treatments was streaking? (2/0)
- b) The three students may split 20 % of the income for the day among themselves. What will their hourly wage be if they all work for 6 hours? (2/1)

5. The pottery class had a pottery sale and their advertisement looked like this:

**Get three for the price of two!**

If you buy any three items, you get the cheapest one free!

**Mug**  
98:-

**Pitcher**  
198:-

**Plate**  
149:-

**Bowl**  
298:-

Lisa buys quite a lot: two mugs, two plates, one pitcher and one bowl. The sales person says her bill is 794 kr. Lisa adds it up and thinks she should only pay 743 kr. Show with calculations how they might have arrived at these different amounts. What should Lisa say to the salesperson to convince him that she (Lisa) is right?

(2/1)

6. Agnes took photos of some of her pottery items. The objects were placed on a table and pictures were taken from different angles, see pictures A–C.

**Picture A**



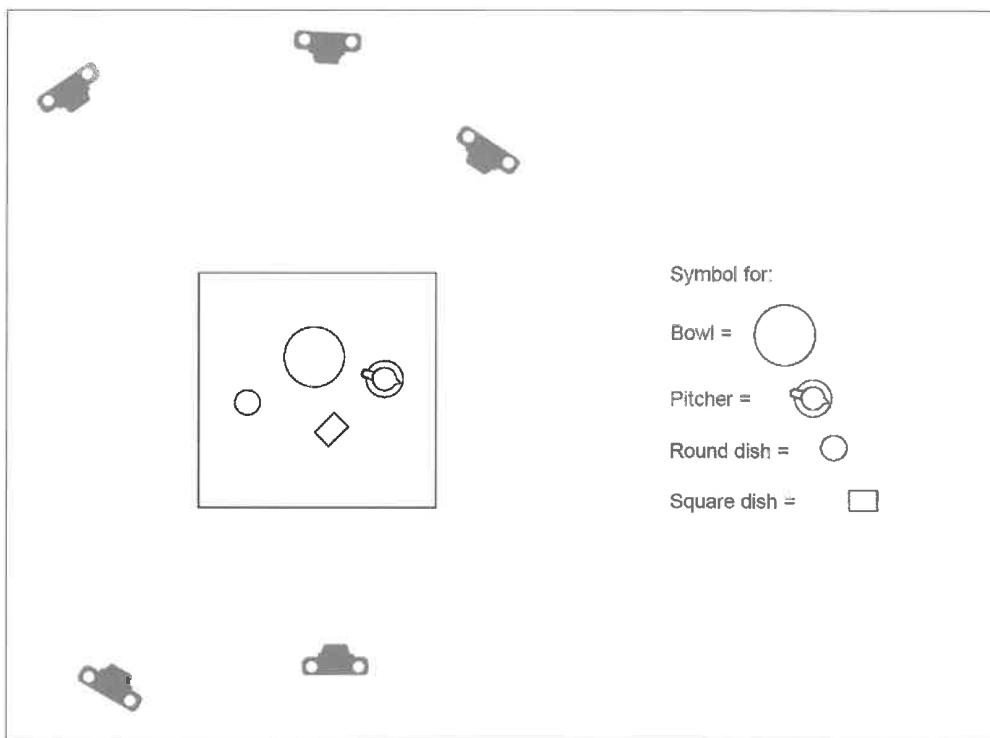
**Picture B**



- a) In the figure below you can see how the objects were placed on the table. Pair together the pictures A and B with the corresponding correct position of the camera. Write the letters A and B at the cameras in the figure that you think are correct. *Only the answer is required.*

(2/0)

**Figure**



- b) The position of the camera when picture C was taken is not marked in the figure. Mark with an X in the figure where you think the camera was placed. *Only the answer is required.*

(0/1)

**Picture C**



7. Agnes is turning a vase on the potter's wheel. When the vase is finished it must be baked in the kiln (oven), to remove the water from the clay. Before baking, the vase weighs 987 g and after baking it weighs 691 g. What percentage of the clay was water?



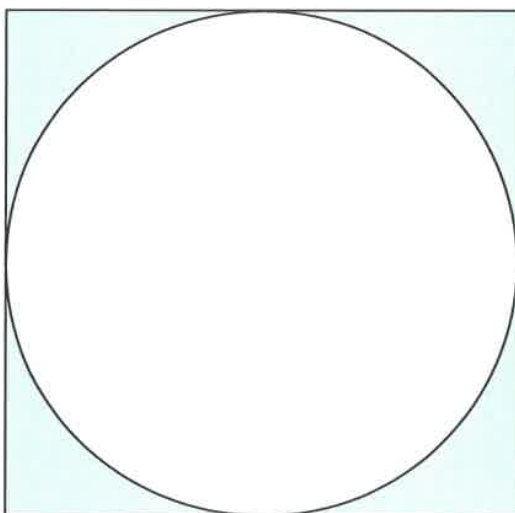
(1/1)

8. There were 16 participants in the pottery class. Of these, 10 persons paid the full fee and 2 persons got a 25 % discount since they were enrolled in other courses too. 4 persons were under 18 years of age and paid half fees. All together the participants paid 16 200 kr. Find the course fee for a young person under 18.

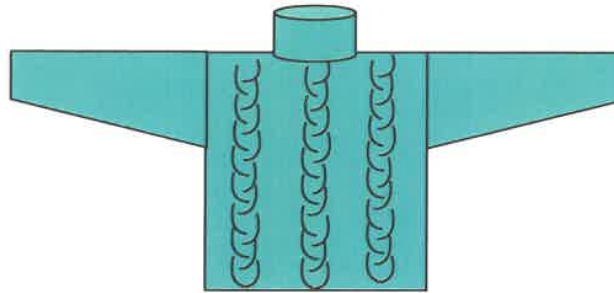
(1/2) ✖

9. Markus has square silver plates, of *different sizes*. From these he wants to cut out circular silver trays as the figure shows. Investigate what percentage of the silver plates will be left over. Present your conclusions using calculations and explanations.

(1/2) ✖



10.



David is knitting a sweater. He bought 11 hg of yarn. When both the front and back parts are finished he has used up 6.5 hg of yarn. Will there be enough yarn for the collar and the two arms? Explain your conclusions using calculations and explanations. The measurements for the different parts of the sweater are shown in the figures.

(1/3) ✖

