

Instructions – Part II

Time 120 minutes for Part II.

Aids Calculator, approved formula page and ruler.

Part II Part II consists of 11 questions. Most of the questions require not only an answer, you must also

- write your solutions
- explain your line of thought and reasoning so that it is easy to follow
- draw clear figures when needed.

Some questions require only answer. These are indicated by the text “*Only answer is required*”.

After each question the maximum number of points available for your solution is shown. For example (2/1) indicates that the question can give 2 g-points and 1 vg-point.

In questions marked $\boxtimes$ you have an opportunity to demonstrate MVG-quality. This means that you use general methods, models and reasoning, that you analyse your results and present a clear line of thought with correct mathematical language.

Grading The test (Part I + Part II) gives a total maximum of 58 points, of which 28 are vg-points.

Lower limits for examination grade

Pass: 18 points.

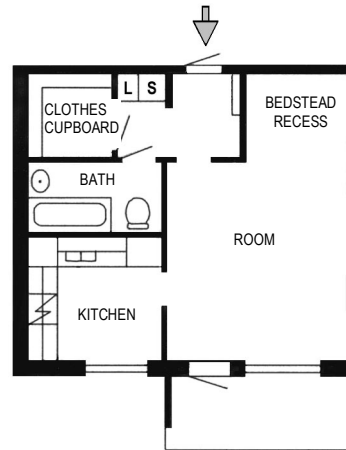
Pass with distinction: 35 points of which at least 12 vg-points.

Pass with special distinction: At least 21 vg-points. In addition you must demonstrate several of the MVG-qualities that are possible to show in the questions marked $\boxtimes$.

Write your name, date of birth, and adult education/secondary school program on the papers your hand in.

1. Calculate $\frac{3528}{23.17 + 8.33}$ Only answer is required. (1/0)

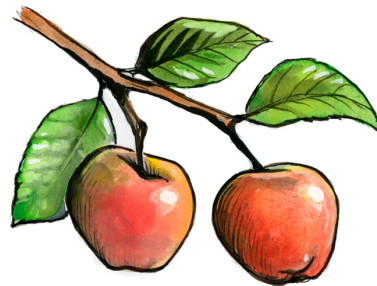
2. Louise has just bought her first apartment. The size of the apartment is 38 m² and she paid 627 000 kr for it. What did the apartment cost per square metre?



(1/0)

3. A fruit merchant compared the price of apples in six different countries in Europe. The prices are given in Swedish Crowns (kr).

Country	Price (kr/kg)
Sweden	22.95
Holland	12.85
England	18.74
France	22.11
Norway	28.63
Denmark	16.53



- a) What is the average price for a kilogram of apples in these countries? (2/0)
- b) How many kilograms of apples can you buy for 100 Swedish Crowns in Denmark? (1/0)
- c) How many percent higher is the price of the most expensive apples compared to the price of the cheapest ones? (1/1)

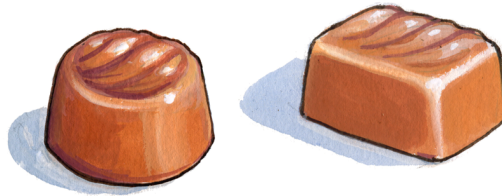
4.

Metre (m)		Foot (ft)		Centimetre (cm)		Inch (in)
1 m	=	3.281 ft	=	100 cm	=	39.37 in
0.3048 m	=	1 ft	=	30.48 cm	=	12 in

- a) Glenn, an American boy, is 4 feet (ft) and 9 inches (in) tall. Express his height in feet (ft). (1/0)
- b) Glenn's sister is 5 feet (ft) and 3 inches (in) tall. Express her height in centimetres. (1/1)

5. A chocolate factory sells chocolates in boxes of different sizes. In each box there are two kinds of chocolates and the ratio of the quantities of these two kinds is 3:5.

- a) How many chocolates are there of each kind in a box containing 16 chocolates? (1/0)
- b) In another box there are 15 chocolates of the one kind. How many chocolates might there be altogether in the box? (1/1)



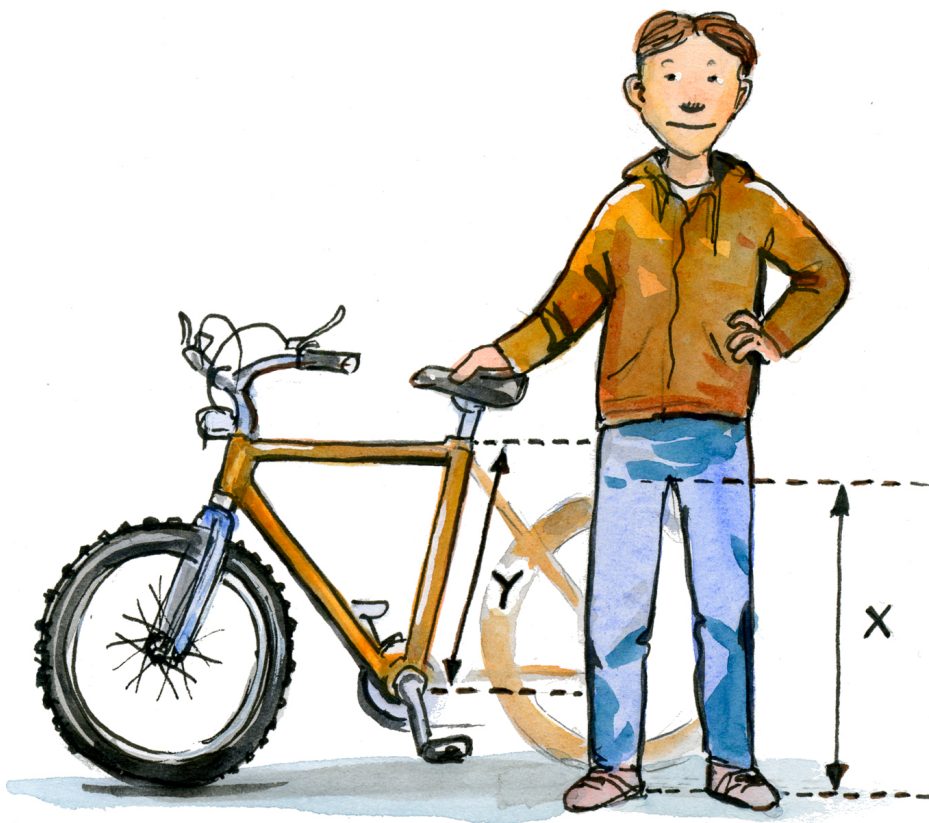
6. The size of a bicycle is determined by the length of the seat tube (y). In order to know what size of bicycle you should buy you can measure the inner leg length x cm for the person who is to use the bicycle. Then you can calculate the best size of bicycle in two different ways:

Formula A: $y = x - 23$

Formula B: $y = \frac{2x}{3}$

x is the inner leg length in cm and y is the length of the seat tube in cm. The formulas hold for inner leg length between 30 cm and 90 cm.

- a) Marcus is going to buy a bicycle and his inner leg length is 63 cm. Use formulas A and B respectively to calculate what length Marcus should have for his seat tube. *Only answer is required.* (2/0)
- b) What inner leg length gives the same seat tube length no matter which of the two formulas you use? (0/2) ☐



7. The mean for six numbers is 50, the median is 50 and the mode is 50. *Not all the numbers are the same.* Give an example of what the six numbers might be and show that these statements are true for your numbers. (1/2)

8. The company "Merry Christmas" manufactures plastic Christmas trees. They have three standard sizes described in the table below.

Size	Height	Greatest circumference	Number of lights	Price
Small	8 dm	16 dm	64 st	192 kr
Medium	12 dm	24 dm	144 st	312 kr
Large	20 dm	40 dm	400 st	600 kr

- a) Each light costs 0.50 kr. What fraction or percentage of the price for the small tree is the cost of the lights on it? (2/0)
- b) To calculate the price, P , for the trees, they use the formula $P = 20a + 0.5b$. What do the variables a and b stand for in the formula? Show that your interpretation is correct. (0/2)
- c) The company "Merry Christmas" is going to start making a new size of plastic Christmas tree. It is to be 150 cm high and of the same shape as the other trees. How many lights must the new tree have if the lights are to be placed at the same closeness as they are on the other trees? Explain your thinking and your answer using calculations and/or reasoning, showing that the lights are placed with the same closeness as before. (0/2) ■



9. At a certain secondary school there are only two programs, the Electrical and Building programs. 24 % of the students in the Electrical program are girls but in the Building program only 3 % are girls. There are twice as many students in the Electrical program as in the Building program. What percentage of the students at this school are girls?

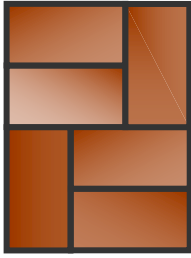
(1/1) 

10.

SALE!

Bargain-priced floor for pretty patterns!

Whole carton (50 tiles) costs ...



In the picture you can see six floor tiles in a pattern. What are the dimensions of one of these tiles (length and width)?

(1/2)

11. On each side of a triangle, squares are drawn based on the sides of the triangle (see figure). Show that $x + y + z = 360^\circ$.

(0/2) 

