

# MATHEMATICS TEST

## Year 9 – Part B

The problems require complete solutions.

Your solutions should be clear enough for another person to read and understand what you mean. It is important that you show *all* your workings. You can earn points for partially worked problems.

The points total for each correctly solved problem will be shown beside each problem.

*All calculations and answers should be written on paper that is handed in at the end of the test.*

*The test packet must be handed in with your solutions.*

You may use calculator and ruler.

Time: 80 minutes.

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

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

Date of birth: Year \_\_\_\_\_ Month \_\_\_\_\_

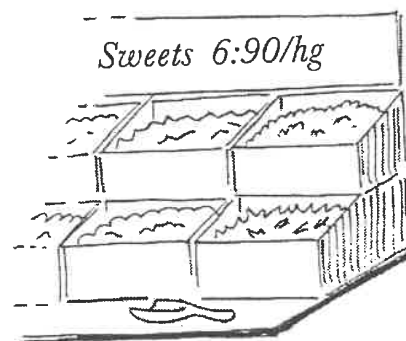
Day \_\_\_\_\_

Girl ☐ Boy ☐

1. A visit to 'Jacob's Gym' costs 80 kr.  
A season ticket for one term costs 900 kr.  
How many times do you at least need to go to "Jacob's Gym"  
to make it worthwhile buying a one-term season ticket?  
Show your workings.

(2 p)

2. Lovisa buys sweets for 11.50 kr. When  
paying she hands over a twenty kronor  
note to the assistant. By mistake the  
assistant gives Lovisa 11.50 kr change.  
How much does Lovisa need to give the  
assistant to adjust the mistake? Show your  
workings.

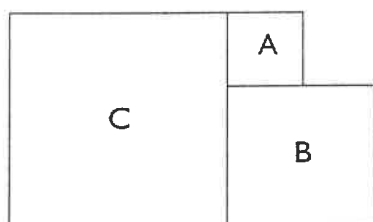


(2 p)

3. Hassan says "An increase from 40 to 80 is a 100 % increase".  
Amir says "Then a decrease from 80 to 40 is a 100 % decrease".  
Who is right and who is wrong? Explain for each of these  
assumptions why it is right or wrong.

(3 p)

4. A, B and C are squares. Square A has an area of  $4,0 \text{ m}^2$   
and square B has an area of  $16 \text{ m}^2$ .



- a) Find the area of square C.
- b) Find the circumference of the *whole* figure.
- c) What scale is the figure drawn in?

Explain your  
answers and  
show your  
workings.

(2 p)

(2 p)

(2 p)

5. A shop sells lottery tickets. When Karin enters the shop there are 56 tickets left. The probability of buying a winning ticket are  $\frac{3}{7}$ .

- a) How many winning tickets are there left?  
 b) Karin buys six tickets of which four are winners and 2 losers. A moment later Alfred buys a lottery ticket.  
 What is the probability that Alfred buys a winning ticket?

Show your workings.

(2 p)

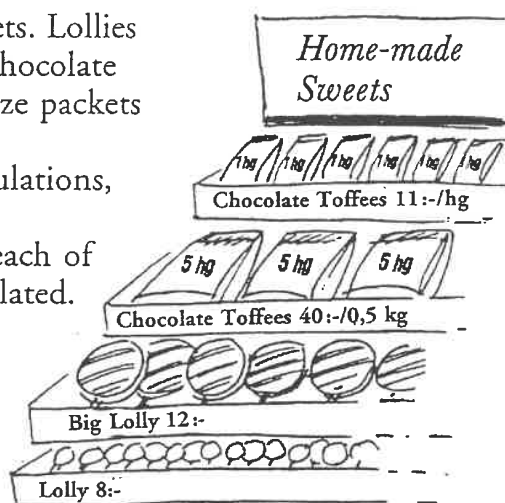
(2 p)

6. The shop also sells home-made sweets. Lollies are available in different sizes and chocolate toffees can be bought in different size packets (see picture).

Someone makes the following calculations, when buying home-made sweets.

Explain, in ordinary language, for each of the calculations, what is being calculated.

- a)  $4 \cdot 8 + 3 \cdot 12 = 68$   
 b)  $10 \cdot 11 - 2 \cdot 40 = 30$



(2 p)

(2 p)

7. Ahmed weighs  $a$  kg and Bert weighs  $b$  kg. Cissi weighs  $c$  kg and Diana weighs  $d$  kg.

Write in ordinary language the meaning of the following expressions.

- a)  $a = 52$   
 b)  $d - c = 2$   
 c) What question is answered in this calculation

$$\frac{a + b + c + d}{4}?$$

(1 p)

(2 p)

(2 p)

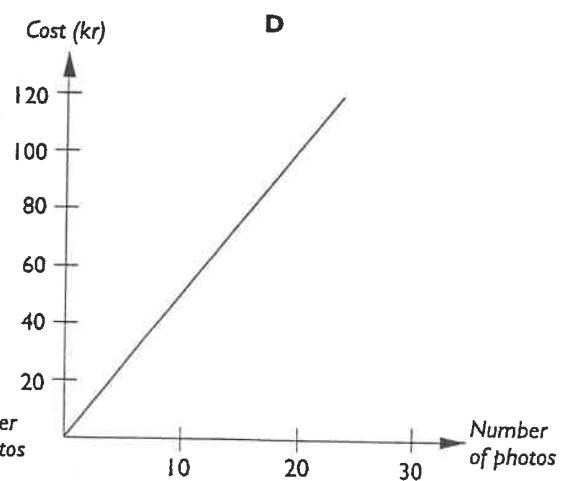
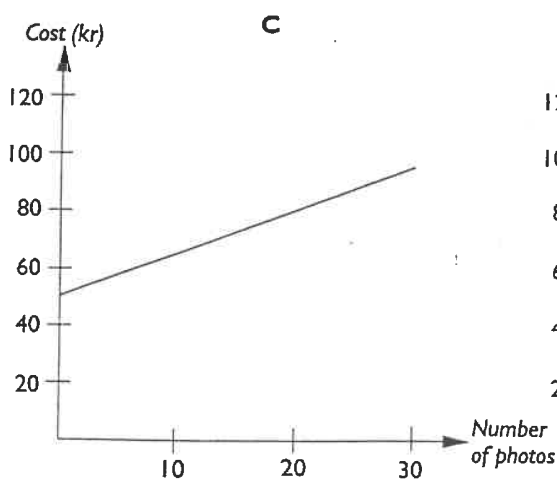
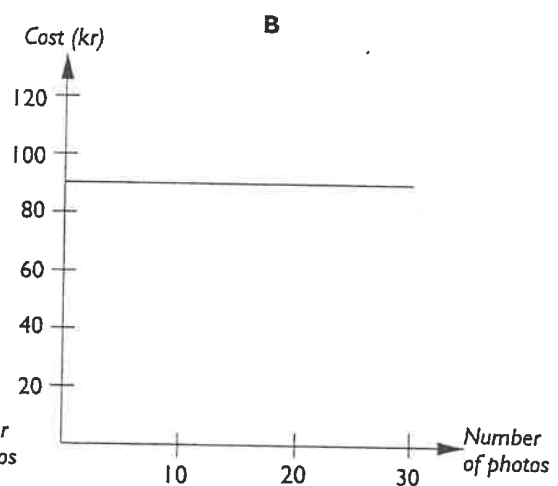
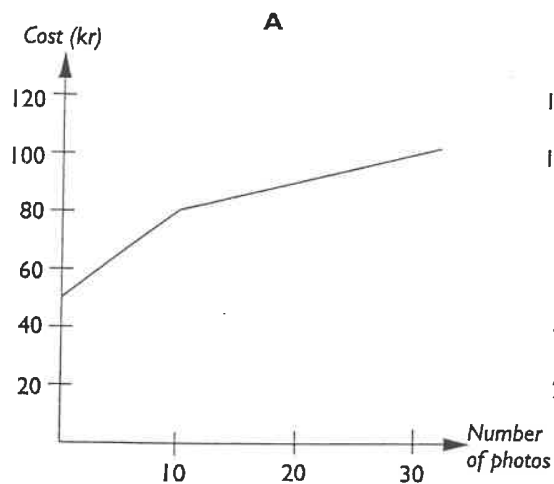
8. Three photographic shops have these three different advertising posters.

Hubbe's Photo  
Free developing  
5 kr per photo

Fia's Photo  
90 kr per film  
for developing  
and photos

Gösta's Photo  
50 kr for developing  
+ 1.50 kr per photo

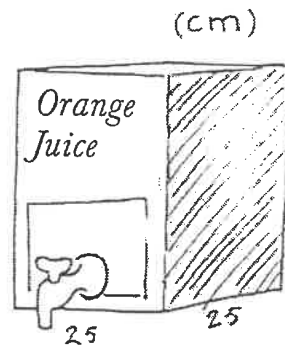
- a) Which of the graphs shows Hubbe's, Fia's respectively Gösta's method of payment for developing and photos? (2 p)
- b) Write a suitable advertising poster for the remaining graph. (3 p)



Don't forget to explain your answers  
and show your workings.

9. Cool orange juice is sold in a shop.  
The juice is stored in a container  
(see picture). A full container takes  
25 litres.

- a) How many 20 cl glasses of juice can  
be filled from a full container?
- b) Work out the high of the  
container?



(2 p)

(3 p)

10. At a company with 15 employees the average wage was  
15 800 kr/month and the median wage was 16 000 kr/month.  
When two more people were employed the average wage for  
the company went up to 16 000 kr/month, despite one of the new  
employees receiving a wage of less than 15 800 kr/month.

- a) Suggest what wage each of the two new employees received.
- b) The median wage remained unaltered after the two new  
employees arrived.  
Explain why.

(3 p)

(2 p)

11. You know that  $x + y = 11$  and  $2x - 3y = 2$ .  
What is the value of  $3x - 2y$ ?

(2 p)