Mathematics

Delprov D

1a

Elevens namn och klass/grupp

Skolverket

Instructions – Part D

Time for the test

120 minutes for Part D.

Aids

Allowed aids on part D are digital devices, formula sheet and ruler.

Tasks

This part consists of several different tasks. The solutions are to be written on separate paper, which is to be submitted together with the test booklet. For most of the tasks in this part it is not enough to only give an answer, you also have to

- show your solutions
- explain/motivate your thinking
- draw figures when required.

Grading limits

The test (Part A–D) gives a total maximum of 79 points.

Limit for test grade

E: At least 19 points.
D: At least 33 points of which at least 11 points at level C or higher.
C: At least 43 points of which at least 19 points at level C or higher.
B: At least 53 points of which at least 4 points at level A.
A: At least 62 points of which at least 8 points at level A.

Name: _____

Date of birth: _____

Programme:_____ Class: _____

Also write your name, date of birth, programme and class on the sheets you hand in.

Illustration: Jens Ahlbom

17. The following sign is found in a shop:

How much is the discount in per cent? (1/0/0)

18. Sizes of jeans are given in whole inches. 1 inch is equivalent to 2.54 cm. Joseph has a waist measurement of 74 cm. What jeans size should he choose? (2/0/0)

19. You are travelling 80 km in one hour.
How many seconds does it then take you to travel 100 m? (2/0/0)

20. For a car with good tyres and brakes the approximate braking distance on dry asphalt is calculated using the formula

$$s = \frac{v^2}{200}$$

where s is the braking distance in metres and v is the speed in km/h.

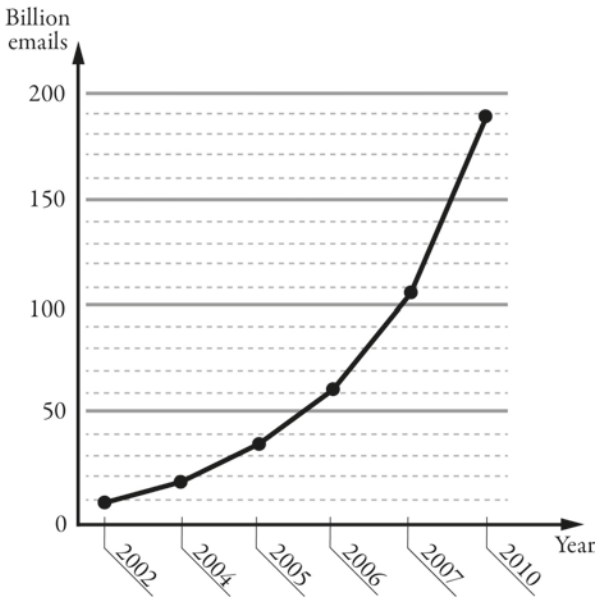
How much longer is the braking distance according to the formula if you drive at a speed of 70 km/h compared to driving at a speed of 50 km/h? (2/1/0)

21. The diagram shows the number of billion emails sent on average in the world every day.

a) Out of all the emails sent, it is estimated that about 82 per cent are spam (unwanted emails). About how many spam were sent in a day in 2010? (2/0/0)

b) The diagram is misleading. What is misleading in the diagram? (1/1/0)

c) If the diagram was drawn correctly, how would this affect the appearance of the diagram? (1/1/0)



22. In 2014, the price of electricity was 27 öre per kWh.
That was 40 % lower than the year before.
How much did 1 kWh cost in 2013?

1 kWh = 1 kilowatt hour

(0/2/0)

23. The table below shows the average price of lunch in 2006 and 2012 in a couple of cities in Sweden. Has the lunch price in Malmö increased more or less than the CPI (Consumer Price Index)? (0/2/0)

Lunch price in SEK

Year	Stockholm	Göteborg	Malmö	National average
2012	81.3	77.2	76.4	79.1
2006	68.1	67.4	66.8	67.5

Source: Gastrogate

Year	**CPI**
2012	314
2011	311
2010	303
2009	300
2008	300
2007	290
2006	284

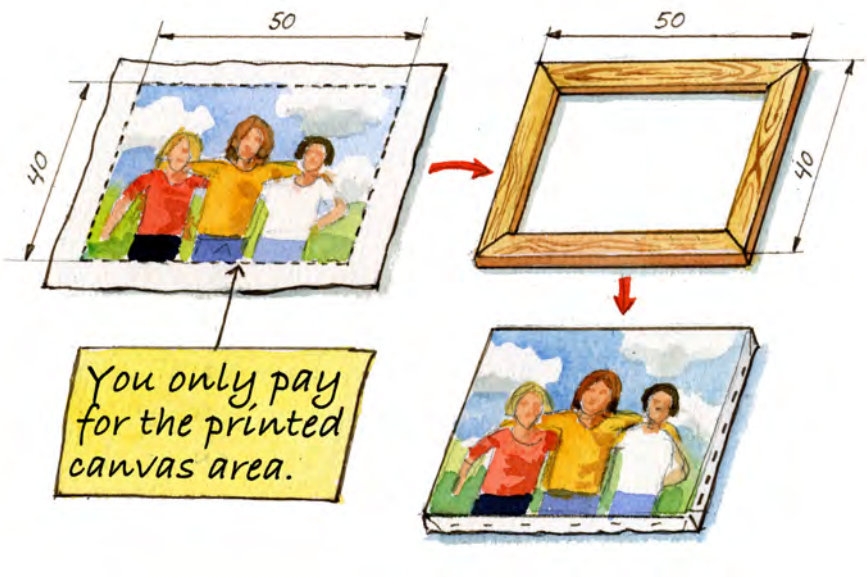
24. Kim and Alex are comparing results from the school election. Kim says that an increase from 16 % to 19 % is greater than an increase from 32 % to 36 %. Alex says that it is the other way around. Can they both be right? Motivate. (1/1/1)

25. Frida takes out an SMS loan of SEK 1 000. The loan is to be repaid after one month and the monthly interest rate is 20 %. At the end of the month Frida cannot afford to pay her debt.

In order to pay her debt she takes out a new SMS loan for the whole amount she owes. The new loan has the same monthly interest rate.

Frida continues to borrow in the same way every month.
How large is Frida's debt one year after she took out her first SMS loan? (0/2/1)

26. A photographic dealer's prints rectangular pictures on canvas and then mounts the picture on a wooden frame. The wooden frame costs SEK 0.45/cm. Canvas with print costs SEK 0.12/cm^2.
The cost of mounting is SEK 169 for all frame sizes.



a) Yasmin wants to print a picture and have it mounted. She wants the picture to be 50 cm long and 40 cm wide. What will the cost be? (1/2/0)

b) To calculate the price of mounted pictures, the staff needs a formula which includes length and width. The price has to include the canvas with printing, frame and cost of mounting.
Help the photographic dealer's to create such a formula. (0/2/2)

27. Two equally sized cans are filled with a mix of oil and petrol.
In one can, the ratio of oil and petrol is 1:9 and in the other can the ratio is 1:4.

What will the ratio between oil and petrol be if we pour the contents of the two cans into one larger can? (0/1/2)

PRIM gruppen