Mathematics

Part D

Student Booklet

1a

Elevens namn och klass/grupp

Skolverket

Instructions – Part D

Time for the test 120 minutes for Part D.

Aids Digital devices, formula sheet and ruler.

Tasks 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.

For some tasks only the answer needs to be given. They are marked with *"Only answer required"*.

Grading limits The test (Part A–D) gives a total maximum of 84 points.

Limit for test grade
E: At least 19 points.
D: At least 34 points of which at least 10 points at level C or higher.
C: At least 44 points of which at least 18 points at level C or higher.
B: At least 55 points of which at least 6 points at level A.
A: At least 62 points of which at least 10 points at level A.

Name: _____

Date of birth: _____

Secondary program: _____ Class:_____

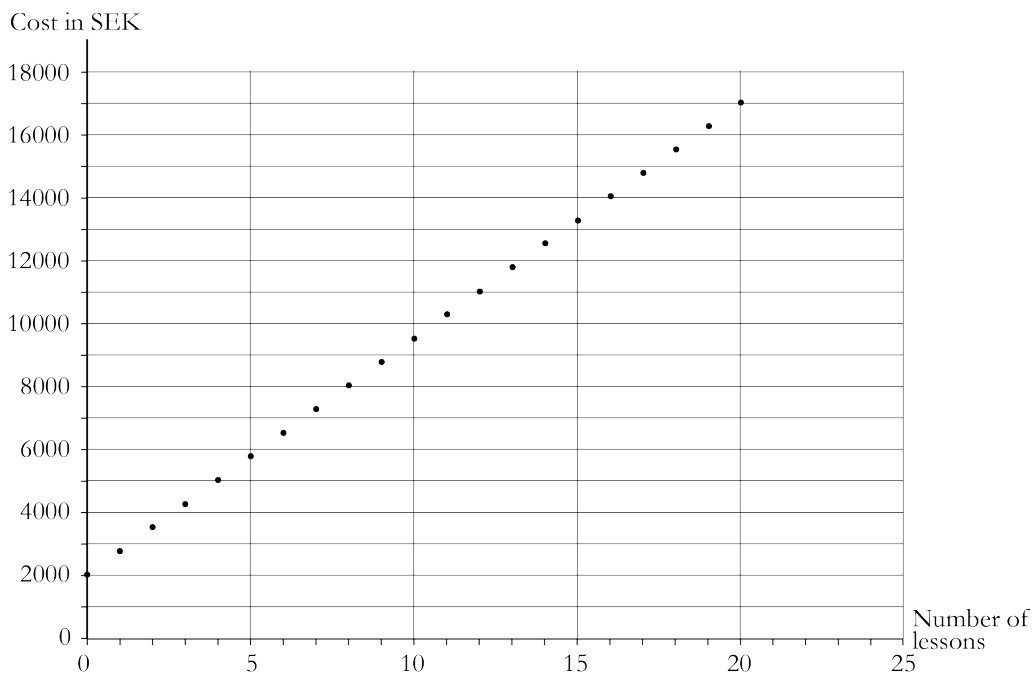**Also write your name, date of birth, secondary program and class on the sheets you hand in.**

Illustration: Jens Ahlbom

14. Calculate $\dfrac{5050}{305 - 52.5}$ *Only answer required.* (1/0/0)

15. Joseph has a waist measurement of 74 cm.
1 inch corresponds to 2.54 cm.
Which inch size of jeans should he choose? (2/0/0)

16. A hair on a person's head grows at an average of 0.35 mm/day.

    a) Roughly how much does a hair grow in a month? (1/0/0)

    b) One of Adam's hairs is 5.6 cm long.
       How long will it take for Adam's hair to become twice as long? (2/0/0)

17. Anton is going to get a driver's license and is looking at prices at
the "Central Driving School". The graph shows the total cost of
the theory course and driving lessons.

    a) Lotta says that she paid SEK 9 500 for the theory course and
       driving lessons at the "Central Driving School". How many
       driving lessons did she take in that case? *Only answer required.* (1/0/0)

    b) What does every driving lesson cost at the "Central Driving School"?
       Motivate your answer. (1/1/0)

    c) Describe in words or in a formula the total cost of the
       theory course and driving lessons at the "Central Driving School".
       Only answer required. (0/2/0)

18. According to a book of records the shortest man who ever lived was 57 cm in height and the tallest was 272 cm in height. The average height of men in Sweden in the age group 16–84 years is 179 cm.

The figure in the drawing shown alongside is 5.0 cm in height and corresponds here to a man of average height.

If you were to draw the shortest and the tallest man to the same scale, how tall would these two figures be? (1/2/0)

19. A shop sells a TV at the cash price of SEK 6 599. It can also be bought on instalments according to the following terms:

Pay SEK 199 per month for 36 months.
A notification fee of SEK 29 per month and
an arrangement fee of SEK 395 will be added.

How much *more* will the TV cost in total when bought on instalments? (1/1/0)
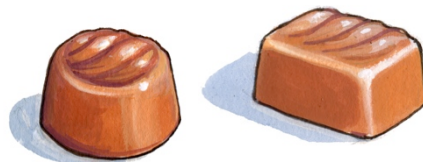
20. The chocolate factory sells boxes of different sizes with pieces of chocolate. Each box has two sorts of pieces of chocolate in the ratio of 3:5.

a) How many pieces of each sort are there if a box contains 16 pieces of cholcolate? (2/0/0)

b) A box has 15 pieces of cholcolate of one sort. Investigate how many pieces of cholcolate there can be in the box in total. (1/2/0)

21. A jersey cost SEK 800. When a shop had a sale, the prices were reduced in two rounds, first by 20 % and then to half the sale price. Anna and Emelie calculate the price of the jersey after both price changes.

Anna calculates the price like this:

$800 \times 0.8 \times 0.5 = 320$

The sale price is SEK 320.

Emelie does the following calculation:

$800 - 800 \times 0.2 - 800 \cdot 0.5 =$

$= 240$

Answer: The price is SEK 240.

Who has calculated the price correctly and how could Anna and Emelie have been thinking? (1/1/1)

22. Jonna looks into what an ice cream has cost in various years. She wants to draw a graph showing the price trend and uses a spreadsheet program to do so. She draws two diagrams, which look different.

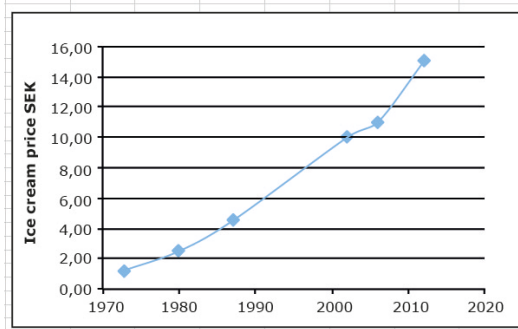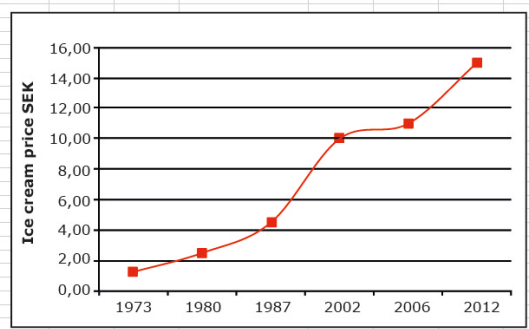a) Which diagram is misleading and why? (0/2/0)

Diagram 1

Diagram 2

b) Jonna chooses to do a calculation in cell E5 of her spreadsheet program. What is she calculating and what will the answer be?

23. The table shows the value of the Swedish krona (SEK) over time taking into account the development of prices.

Year	1970	1980	1990	2000	2010
1970	**1.00**	0.41	0.20	0.16	0.14
1980	2.41	**1.00**	0.48	0.38	0.33
1990	5.02	2.08	**1.00**	0.80	0.68
2000	6.30	2.61	1.25	**1.00**	0.86
2010	7.33	3.03	1.46	1.16	**1.00**

Source: SCB (Statistics Sweden)

Here is how to read the table:

SEK 1 in 2010 corresponds to SEK 0.14 in the value of money in 1970.
SEK 1 in 1990 corresponds to SEK 1.46 in the value of money in 2010.

a) In 1980 the average price of a cinema ticket was SEK 19.74. If the price of cinema tickets had followed the money value of the SEK from 1980, what would the price of a cinema ticket have been in 2010? (0/2/0)

b) In 2010 the average price of a cinema ticket was SEK 81.90. Compare this ticket price with the ticket price in 1980 in the value of money in 2010. What conclusion do you draw about the development of the price of a cinema ticket? (0/1/1)

c) By what percentage has the value of the SEK decreased compared with the development of prices between 1980 and 2010 according to the table? (0/0/1)
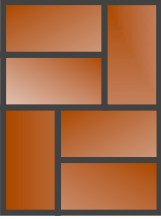
24.

Sale!

Cheap floor tiles!

The whole box (50 tiles)
costs SEK 299
and covers 2.25 m²

The picture shows six floor tiles in a pattern.
What are the measurements (length and width)
of one of these tiles? (1/2/2)

PRIM
gruppen