Mathematics

Part D

Student Booklet

1b

Elevens namn och klass/grupp

Prov som återanvänds omfattas av sekretess enligt
17 kap. 4 § offentlighets- och sekretesslagen.
Detta prov återanvänds t.o.m. **2019-06-30**.

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 90 points.

Limit for test grade

E: At least 18 points.
D: At least 35 points of which at least 13 points at level C or higher.
C: At least 47 points of which at least 24 points at level C or higher.
B: At least 59 points of which at least 7 points at level A.
A: At least 69 points of which at least 12 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.

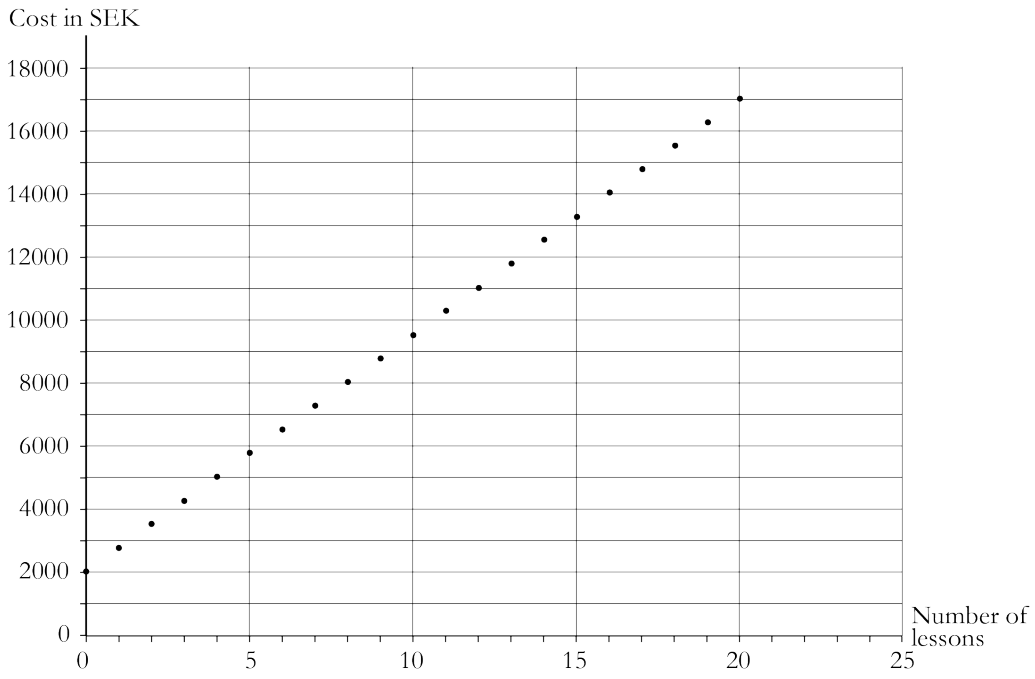
Illustration: Jens Ahlbom

14. 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)

15. 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)

16. 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

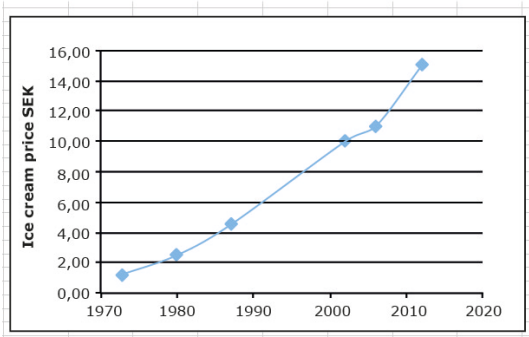
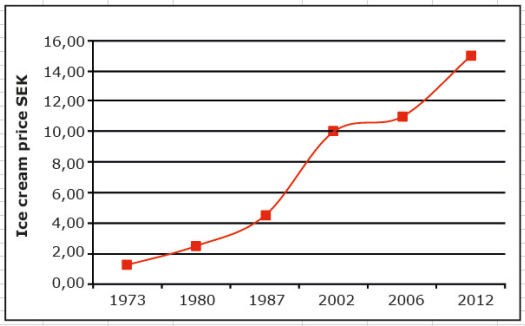
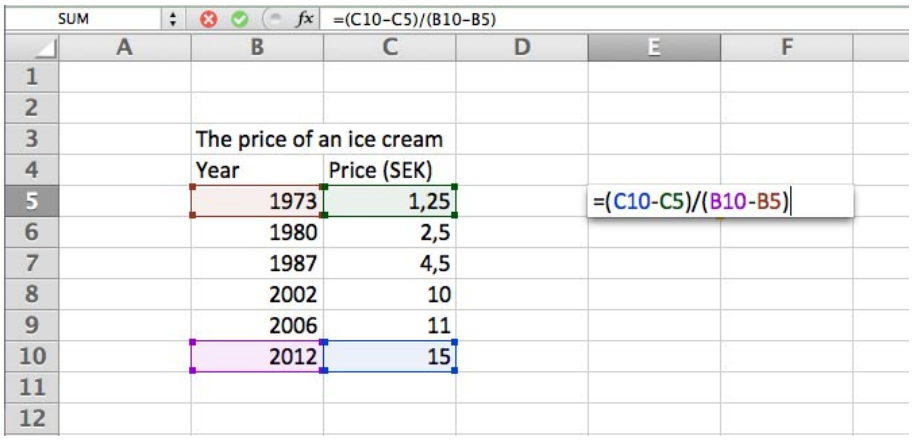


Diagram 2



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



17. According to a forecast the rent of a flat is expected to increase by 4 % per year. By how many per cent is the rent expected to increase in a five-year period according to the forecast? (1/1/1)

18. 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)

19. One of the numbers from 1950 till 1959 is a prime number. Which one? Motivate your answer. (1/1/1)

20. Symmetry lines

a) Draw an equilateral triangle and draw all the symmetry lines in it. (2/0/0)

b) The symmetry lines in the triangle meet at a point.
An angle is formed between two adjacent symmtery lines.
What is the size of the angle between two adjacent symmetry lines in the equilateral triangle? (0/1/0)

c) What is the size of the angle between two adjacent symmetry lines in a square? (0/2/0)

d) Examine the relationship betwen the number of sides of a regular polygon (an n-gon) and the size of the angle between two adjacent symmetry lines in it. (0/1/2)

21. 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)

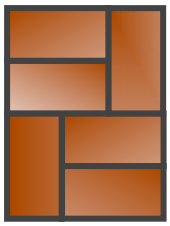
c) By what percentage has the value of the SEK decreased compared with the development of prices between 1980 and 2010 according to the table? (0/0/1)

22.

Sale!

Cheap floor tiles!

The whole box (50 tiles)
costs SEK 299
and covers 2.25 m^2



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

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PRIM gruppen