

# Mathematics

Delprov C

1b

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Elevens namn och klass/grupp

## Instructions – Part C

**Time for the test** 60 minutes for Part C.

**Aids** Allowed aids on Part C are digital devices, formula sheet and ruler.

**Tasks** This part consists of one large task. The solution is to be written on separate paper, which is to be submitted together with the test booklet. In your work it is required of you to

- show your solutions
- explain and motivate your thinking

**Grading limits** The test (Part A–D) gives a total maximum of 80 points.

Limit for test grade

E: At least 18 points.

D: At least 33 points of which at least 13 points at level C or higher.

C: At least 41 points of which at least 19 points at level C or higher.

B: At least 54 points of which at least 7 points at level A.

A: At least 63 points of which at least 12 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

When you are to convert a fraction into a decimal without having access to a calculator, you can first expand the fraction into tenths, hundredths, thousandths, etc. which allows you to convert the fraction into a decimal.

$$\frac{1}{10} = 0.1$$

$$\frac{1}{100} = 0.01$$

$$\frac{1}{1000} = 0.001$$

- Convert  $\frac{13}{25}$  into a decimal by first expanding the fraction into hundredths.
- There are fractions with other denominators than 25 that can be expanded with an integer to get the denominator 100.  
Write a list of all such denominators that you can think of.
- Factorise all the denominators on your list into prime factors.  
What do the denominators on your list all have in common? Explain why.
- The fraction  $\frac{1}{32}$  cannot be expanded into hundredths with an integer.  
Factorise the number 32 into prime factors. Use this and reason your way to what the fraction  $\frac{1}{32}$  can be expanded with to get another power of ten in the denominator.
- Use your result, expand the fraction  $\frac{1}{32}$  and write it as a decimal.



