

Mathematics

Delprov C

Årskurs

9

Elevens namn och klass/grupp

Instructions – Part C

The box below the task contains a description of what the teacher will consider when assessing your work.

It is very important that you clearly show how you have solved the tasks.

Aids: Calculator and formula sheet.

Solutions and answers must be written in this test booklet.

Name: _____

School: _____ Class: _____

Date of birth (year/month/day): _____

Good luck!

Illustration: Jens Ahlbom



When assessing your work, the teacher will consider

- what mathematical knowledge you have shown, and how well you have completed the tasks
- how well you have shown your work
- how well you have motivated the answers.

20. Arithmetic progressions

(4/4/4)

A progression is a sequence of numbers following a certain pattern.
 An *arithmetic progression* always has the same difference between two numbers in the sequence. Here is an example of an arithmetic progression where the difference between the numbers is 4:

5 9 13 17 ...

Task I

- a) In the arithmetic progressions below, the difference between the numbers should be 5. Fill in the missing numbers in progressions A and B, and create your own progression with a difference of 5 in progression C:

Progression A 3 8 13 _____

Progression B 27 _____ _____ _____

Progression C _____ _____ _____ _____

- b) Use the three progressions above to finish the table.

	Sum 1	Sum 2
Progression	Number 1 + Number 2 = Sum 1	Number 3 + Number 4 = Sum 2
A	$3 + 8 = 11$	$13 + \underline{\quad} = \underline{\quad}$
B	$27 + \underline{\quad} = \underline{\quad}$	$\underline{\quad} + \underline{\quad} = \underline{\quad}$
C	$\underline{\quad} + \underline{\quad} = \underline{\quad}$	$\underline{\quad} + \underline{\quad} = \underline{\quad}$

- c) Compare the difference between sum 2 and sum 1 for each progression. Describe your result.

Task II

- a) Create three new arithmetic progressions with four numbers in each progression. The difference between consecutive numbers should be 3. Do the same examination as in Task I a-c. Describe your result.

- b) Examine at least one more arithmetic progression in the same way as in Task I a-c, but with another difference between the numbers. You are free to choose the difference between the consecutive numbers in the progression.

What relation do you find between the difference of the sums and the difference in the progression? Use the results of all your examinations.



Please turn over!

- c) Show that your relation applies to all arithmetic progressions with four numbers, starting with the number a .

