

SUBJECT TEST

Mathematics

GRADE

9

Tests which are re-used are protected by paragraph 3 of Chapter 4 of the Official Secrets Act.

The intention is for this test to be re-used until **2017-06-30**.

This should be considered when determining the applicability of the Official Secrets Act.

Spring 2011

Part B2

Name

Instructions – Part B2

This part consists of questions you may work with for about 50 minutes.

It is very important that you carefully explain the reasoning in your solution.

In the box below the question you can see what considerations the teacher will apply in assessing your work. At the most the question can yield 4 g-points and 4 vg-points. The symbol α indicates that you may demonstrate MVG-qualities in your solution.

Aids: Access to calculator and formula sheet.

Name: _____

School: _____ Class: _____

Birth date: Year _____ Month _____ Day _____

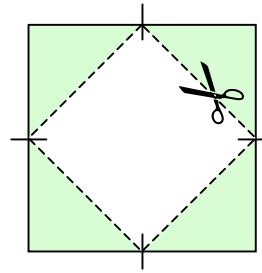
Female ☐ Male ☐

Solutions and answers must be written on separate paper, not on this question paper. The question paper must be handed in, together with your solution.

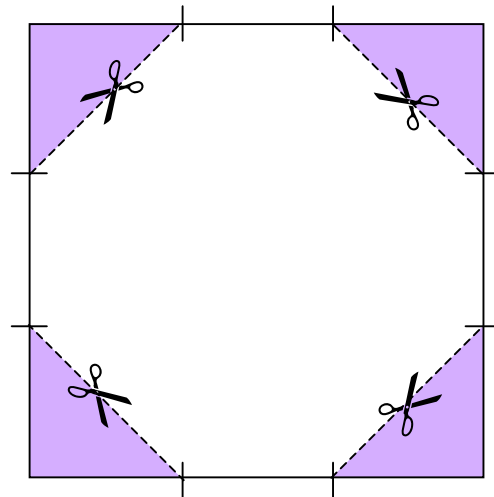
Clipped squares

(4/4) ✕

- a) The sides of a square are divided into two *equal parts*. The corners are cut off (see the figure to the right). How *large part* of the area of the square is clipped away?



- b) The sides of another square are divided into three *equal parts*. The corners are then clipped off (see the figure to the right). How *large part* of the area of the square is clipped off?



- c) Continue this process and investigate how *large part* of the area of the square has been clipped off if you divide the sides of the square into five, seven or more *equal parts* and then cut away the four corners.
- d) Describe the *result* of your investigation of all the squares by using a formula. The formula should be such that you can use it to calculate how *large part* of the area of a square has been clipped off if the sides of the square are divided into n *equal parts* and the corners are clipped off.
- e) Show that your formula is correct.

In assessing your work the teacher will take into consideration

- what mathematical knowledge you have shown and how well you have carried out the task.
- how well you have explained your work and defended your conclusions.
- how well you have presented your written solution.

