

# Mathematics

Delprov C

1C

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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/motivate your thinking
- draw figures when required.

**Grading limits** The test (Part A–D) gives a total maximum of 92 points.

Limit for test grade

E: At least 17 points.

D: At least 32 points of which at least 13 points at level C or higher.

C: At least 43 points of which at least 22 points at level C or higher.

B: At least 57 points of which at least 8 points at level A.

A: At least 68 points of which at least 15 points at level A.

Name: \_\_\_\_\_

Date of birth: \_\_\_\_\_

Program: \_\_\_\_\_ Class: \_\_\_\_\_

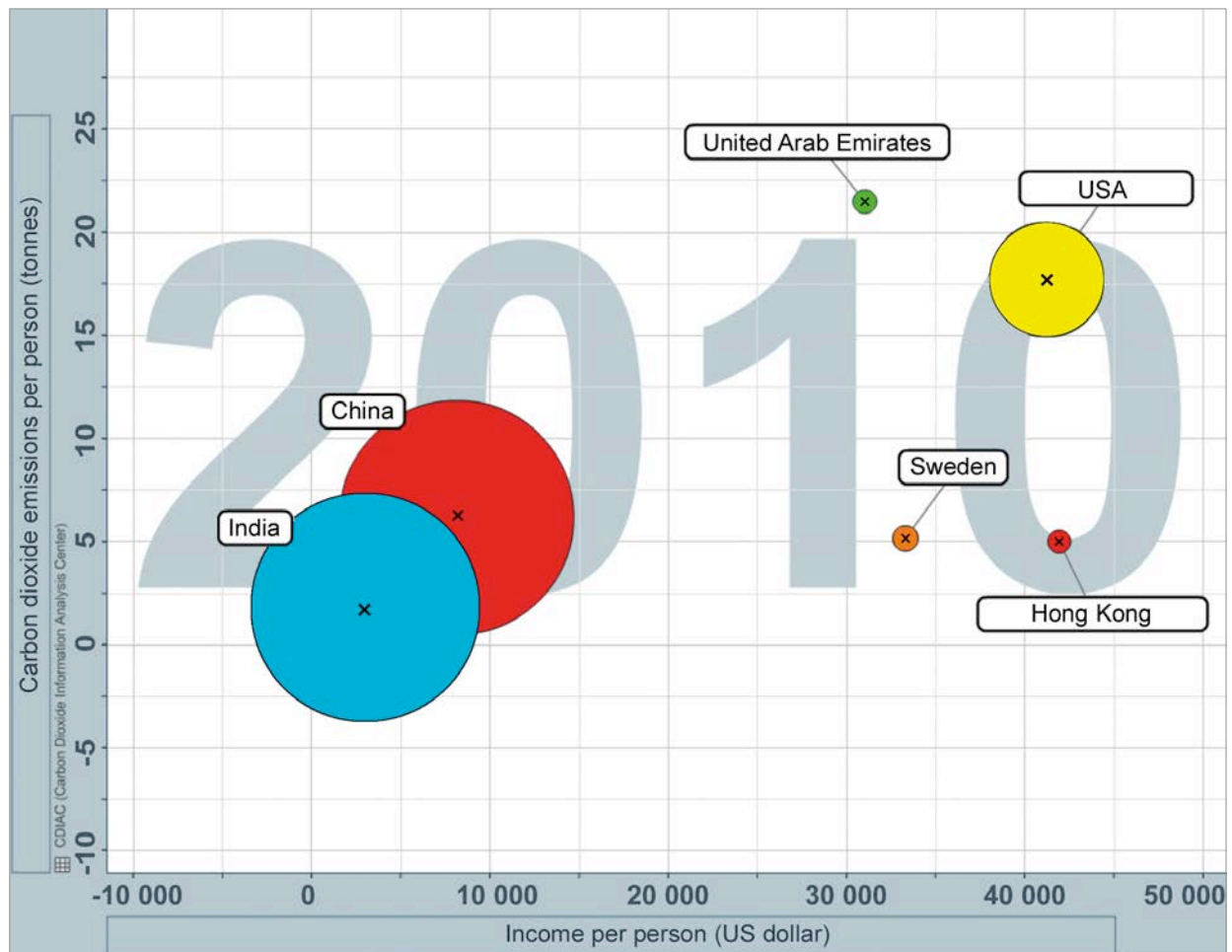
**Also write your name, date of birth, program and class on the sheets you hand in.**

Illustration: Jens Ahlbom

## 17. Carbon dioxide emissions

(3/6/4)

The diagram below shows the carbon dioxide emissions per person in relation to income per person for certain countries in the year 2010. The countries are presented with circles, where the centre point determines the country's position in the diagram and the circle's area corresponds to the population of the country.



Source: Free material from [www.gapminder.org](http://www.gapminder.org)

**Answer the following tasks using the diagram.**

- I** Which country has the largest carbon dioxide emission per person? *Only answer required.*
- II** In which country is the income per person the lowest? *Only answer required.*
- III** Approximately how many percent higher than Sweden are the carbon dioxide emissions per person in the United Arab Emirates?
- IV** The circles' area corresponds to the population of the country. Show that this is true for India and the United States.

Country	Population in millions, year 2010
India	1 225
USA	310

- V** Which country has the largest carbon dioxide emissions in total, India or Hong Kong? Motivate.
- VI** Which country has the lowest ratio between carbon dioxide emissions per person and income per person? Motivate.
- VII** In another country, which is not included in the diagram, the ratio between carbon dioxide emissions per person and income per person is the same as in the United States. In this country the income per person is USD 25 000. Mark the country's placement in the diagram with an x. Motivate the placement.



**When assessing your work, the teacher will consider**

- what mathematical knowledge you have shown and how well you have carried out the task
- how well you have explained your work and given reasons for your conclusions
- how well you have presented your work.





