

The National Agency for Education, referring to 4 kap 3 § Sekretesslagen, emphasizes that this material must be kept confidential. **This material must remain confidential until June 30, 2014.**

**National Test in
MATHEMATICS
COURSE A
Spring 2008**

Part I

Instructions

Time 60 minutes for Part I. It is recommended that you use a maximum of 25 minutes for working with the short answer questions. You may not use your calculator until you have submitted your answers to the short answer questions.

Aids **Short answer part:** Approved formula page and ruler.
Question 11: Calculator, approved formula page and ruler.

Short answer part This part consists of questions to be solved without a calculator. *Only the answer are required.* A correct answer gives 1 g-point (1/0) or 1 vg-point (0/1).

Question 11 This question is a larger question which normally requires more time. In the box below the question you can see what considerations the teacher will make in assessing your solution.

Grading The test (Part I + Part II) gives a total maximum of 55 points, of which 22 are vg-points.

Lower limits for examination grade

Pass: 19 points

Pass with distinction: 34 points of which at least 9 vg-points

Pass with special distinction: At least 16 vg-points. In addition you must demonstrate several of the MVG-qualities that are possible to show in the questions marked **■**.

Name: _____ Date of birth: _____

Adult education/Secondary school program: _____

Name:

Class/Group:

Part I

1. What number is the arrow pointing at?

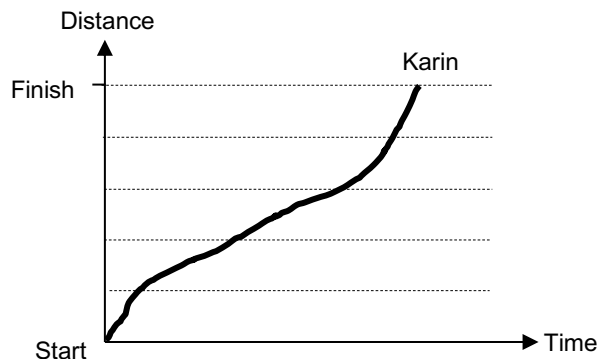


Answer: _____ (1/0)

2. Calculate $\frac{12}{0.3}$

Answer: _____ (1/0)

3. Karin and Hanna are competing in a race and start at the same time. The graph shows how Karin ran her race from start to finish. Hanna won over Karin. Draw a graph that shows how Hanna might have run her race.



(1/0)

4. Mia wants to mix some fruit drink from fruit syrup. How much diluted fruit drink will she get if she follows the instructions on the fruit syrup bottle.



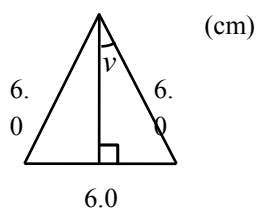
Answer: _____ litre (1/0)

5. What is the approximate value of $\sqrt{249}$?

Circle your answer.

25 50 125 500 1 250 (1/0)

6. Find the angle v in the figure below.



Answer: $v =$ _____ degrees (1/0)

7. Suppose you know that the average age for three brothers. Which of the following questions can you then answer? Circle your answer.

- ☐ How old are each of the brothers?
- ☐ What is the average age for two of the brothers?
- ☐ What is the combined total age of the three brothers?
- ☐ How old is the middle brother?

(0/1)

8. What number must be in the box for the equality to be true?

$$100 - (33 - \boxed{}) = 133$$

Answer: _____ (0/1)

9. Peter weighs p kg and Samuel weighs s kg. Write an equation with expressions showing that Peter weighs 15 % more than Samuel.

Answer: _____ = _____ (0/1)

10. In the following expression a and b are lengths. Which of the following expressions could be a volume? Circle your answer.

$\frac{a}{b}$ a^2b ab^3 $\sqrt{a^2 + b^2}$ ab (0/1)

Question 11 – Rectangles

-  Draw a rectangle. You can choose whatever base (length) and height (width) you wish. Then draw a new rectangle in which the base is 2 cm longer and the height is 1 cm shorter than those in the first rectangle. Calculate the areas of the two rectangles.
-  Draw two rectangles that fit the description in the following box and mark the dimensions on the rectangles.

Description

Two rectangles, A and B, have the same area. The base in rectangle B is 2 cm longer than the base in rectangle A, and the height in rectangle B is 1 cm shorter than the height of rectangle A.

-  Then continue to draw or describe somehow more *pairs of rectangles* that fit the description in the box.
-  Investigate what relationship there is for such *pairs of rectangles*. Describe your conclusions and the relationship you find using words or formulas.



In assessing your work the teacher will take into consideration

- what mathematical knowledge you demonstrate
- what conclusions you reach and how well you explain your reasoning
- how well you present your solution and make your calculations.

(5/5) 