


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 December 31, 2012.**

**National Test in
MATHEMATICS
COURSE A
Autumn 2006**

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 13: Calculator, approved formula page and ruler.
Short answer part	This part consists of questions to be solved without a calculator. <i>Only the answers are required.</i> A correct answer gives 1 g-point (1/0) or 1 vg-point (0/1).
Question 13	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 59 points, of which 24 are vg-points. <i>Lower limits for examination grade</i> Pass: 19 points Pass with distinction: 36 points of which at least 9 vg-points Pass with special distinction: At least 17 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 must be written in the box so that the equality will hold?

$$9.07 + \boxed{} + 3.33 = 15.45$$

Answer: _____ (1/0)

2. A sweater normally costs 400 kr. How much must you pay if you get a discount of 15 %?

Answer: _____ kr (1/0)

3. What number is halfway between -6 and 2?

Answer: _____ (1/0)

4. About how many days is 1.7 weeks?

Answer: _____ days (1/0)

5. How many *million* is $3 \cdot 10^8$?

Answer: _____ million (1/0)

6. Find half of $\frac{3}{4}$? Circle your answer.

$$\frac{1.5}{2}$$

$$\frac{3}{2}$$

$$\frac{6}{8}$$

$$\frac{3}{8}$$

$$\frac{6}{4}$$

(1/0)

Please turn over!

7. Make an estimate of $0.39 \cdot 0.84$ and circle the best alternative below.

0.033 0.12 0.33 1.2 3.3 (1/0)

8. Express the sum of 3 and $2n + 5$ in the simplest possible form.

Answer: _____ (1/0)

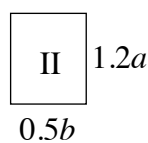
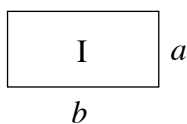
9. A bottle of medicine contains 0.3 liters. How many days will it last if you take 15 ml twice a day?

Answer: _____ days (0/1)

10. Solve the equation $\frac{0.3}{x-0.5} = 1$

Answer: _____ $x =$ _____ (0/1)

11. How many percent *less* is the area of rectangle II than that of rectangle I?



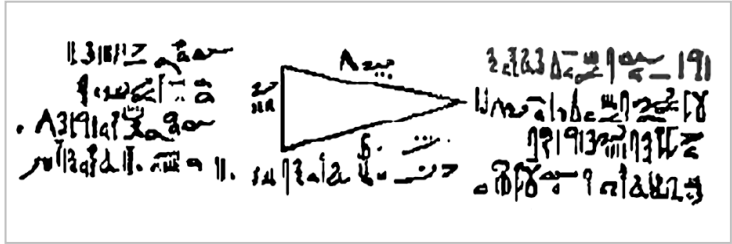
Answer: _____ % (0/1)

12. In the following expressions, a and b represent lengths. Which of the following expressions could be a volume? Circle your answer.

$\frac{a}{b}$ a^2b ab^3 $\sqrt{a^2 + b^2}$ a^5b (0/1)

13. Egyptian area calculation

The most well-known source of Egyptian mathematics is the Rhind papyrus from 1600 B C. It is a handbook with mathematical calculations for among other things area and volume.

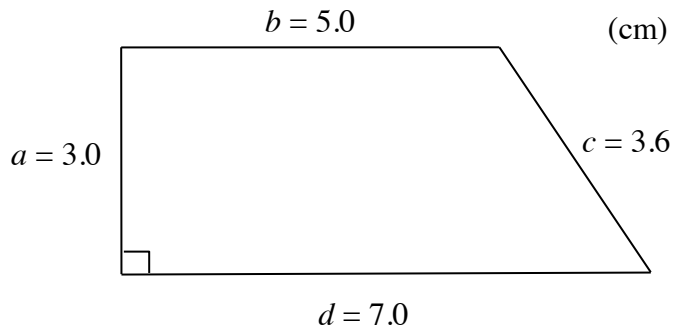


Piece of the Rhind papyrus from 1600 B C

The formula below which the Egyptians used is *not as good* as the ones we use today for finding the exact area. The area of a quadrilateral was calculated by the Egyptians using the formula:

$$A = \frac{(a+c)}{2} \cdot \frac{(b+d)}{2} \text{ where } A \text{ is the area and } a, b, c \text{ and } d \text{ are the sides.}$$

- Find the area of this figure using the Egyptian formula.
- The figure is a parallel trapezium. Find the error when the area is calculated using the Egyptian formula.



- Is there some type of quadrilateral for which the Egyptian area formula is correct?
- Investigate how well the formula works for different types of quadrilaterals.

In assessing your work the teacher will take into consideration

- what mathematical knowledge you have demonstrated
- what conclusions you reach
- how well you have presented your solutions and carried out your calculations.

(5/5) ▣