

Kursprov, höstterminen 2014

# Mathematics

Delprov B

1c

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Elevens namn och klass/grupp



## Instructions – Part B

**Time for the test** 60 minutes for Part B.

**Aids** Allowed aids on Part B are formula sheet and ruler.

**Tasks** This part consists of tasks to be solved without using digital devices. Answers and solutions are to be written in the test booklet. Some of the tasks require working, which is to be shown in the figure and the box next to the task. For the other tasks only the answer is required. The maximum number of points that you can get for your answer/solution is shown after each task.

**Grading limits** The test (Part A–D) gives a total maximum of 93 points.

Limit for test grade

- E: At least 20 points.
- D: At least 35 points of which at least 13 points at level C or higher.
- C: At least 45 points of which at least 22 points at level C or higher.
- B: At least 60 points of which at least 8 points at level A.
- A: At least 70 points of which at least 14 points at level A.

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

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

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

Illustration: Jens Ahlbom



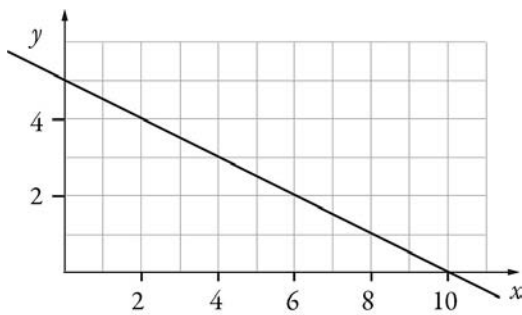


6. Enter the appropriate symbol in the box between the statements below. Choose between the symbols  $\Leftarrow$ ,  $\Rightarrow$  and  $\Leftrightarrow$ . Motivate your choice.

A number's numerical sum is divisible by 9.  A number is divisible by 3.

(1/2/0)

7. The figure below shows the graph of the function  $y = f(x)$ .



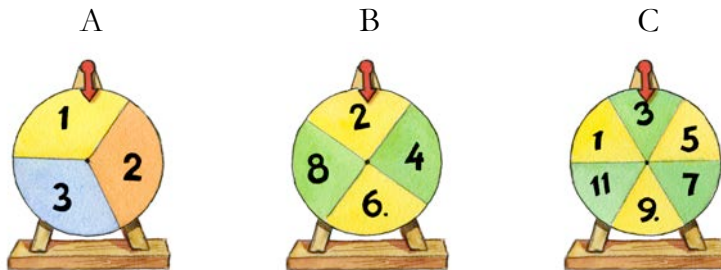
- a) Use the graph to determine  $f(2)$ . Answer:  $f(2) =$  \_\_\_\_\_ (0/1/0)
- b) Use the graph to solve the equation  $f(x) = 2$ . Answer:  $x =$  \_\_\_\_\_ (0/1/0)

8. The number 113 is written in base 7. Write the number in base 10.  
Show your solution.

Answer: \_\_\_\_\_

(0/2/0)

9. Svante is going to spin the three wheels A, B and C. What is the probability that the sum of what the three wheels will show is going to be odd?  
Show your solution.



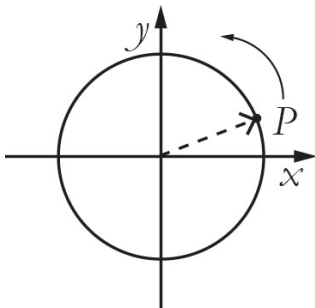
(0/1/2)

10. What number is to be written in the empty box in the table?

$x$	$xy$	$xy^2$
2	-10	

Answer: \_\_\_\_\_ (0/0/1)

11. A circle in a coordinate system has its centre in the origin.  
 A pointer in the circle is pointing at the point  $P$ .  
 $P$  has the coordinates  $(a, b)$ .  
 The pointer is turned  $90^\circ$  counter clockwise, now pointing at point  $S$ .  
 What are the coordinates of point  $S$ ?



Answer: \_\_\_\_\_ (0/1/1)

12. An icicle has the volume  $V(t)$  cm<sup>3</sup>  
 where  $t$  is the time in minutes after 08.00.  
 At 09.00 the icicle has the volume 21 cm<sup>3</sup>.  
 Use the function  $V(t)$  and write this statement  
 using mathematical symbols.



Answer: \_\_\_\_\_ (0/0/1)



**13.** A rental car costs SEK 375 per day to rent. For that price you can drive 100 km. If you drive a longer distance, there is an additional cost of SEK 2.50 per km.

a) Which formula or formulas shown below is/are needed to describe how the cost  $K$  depends on the driven distance  $x$  km? Circle your answer/answers.

$$K = 375$$

$$K = 375 + 2.50x$$

$$K = 375 + 2.50x + 100$$

$$K = 375 + 2.50(x - 100)$$

$$K = 475 + 2.50x$$

(0/1/1)

b) State the definition domain for your choice of formula/formulas. Show your solution.

(0/2/1)

**14.** Determine  $n$  if  $2^4 \times 3^8 = 9^n \times 6^4$

Answer:  $n =$  \_\_\_\_\_

(0/0/2)





# Test result – Student summary

National test in mathematics, course 1c autumn 2014

Name:	Test grade:
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	E-points		C-points		A-points		Total	
	Your score	Maximum score	Your score	Maximum score	Your score	Maximum score	Your score	Maximum score
<b>Part A</b>		3		4		4		11
<b>Part B</b>		7		11		9		27
<b>Part C</b>		3		6		4		13
<b>Part D</b>		14		18		10		42
<b>Total</b>		<b>27</b>		<b>39</b>		<b>27</b>		<b>93</b>

Part A	E	C	A	Score	Comment
Method and carrying through	+E <sub>PL</sub>	+C <sub>PL</sub>	+A <sub>PL</sub>		
Reasoning	+E <sub>R</sub>	+C <sub>R</sub>	+A <sub>R</sub>		
	+E <sub>R</sub>	+C <sub>R</sub>	+A <sub>R</sub>		
Communication		+C <sub>K</sub>	+A <sub>K</sub>		
<b>Total</b>	<b>3</b>	<b>4</b>	<b>4</b>		

Part C	E	C	A	Score	Comment
Method and carrying through	+E <sub>B</sub> +E <sub>P</sub> +E <sub>PL</sub>	+C <sub>B</sub> +C <sub>PL</sub> +C <sub>PL</sub>	+A <sub>PL</sub> +A <sub>M</sub>		
Reasoning		+C <sub>R</sub> +C <sub>R</sub>	+A <sub>R</sub>		
Communication		+C <sub>K</sub>	+A <sub>K</sub>		
<b>Total</b>	<b>3</b>	<b>6</b>	<b>4</b>		

### Grading limits

Limit for test grade

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### Test grade

The test grade sums up the knowledge that the student has shown on the national test. The course grade does not have to be the same as the test grade since the course grade is based on all the knowledge that the student has shown during the course.

Comments:

The form is available to download at [www.su.se/primgruppen](http://www.su.se/primgruppen)