

# Mathematics

Delprov B

1b

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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 83 points.

Limit for test grade

- E: At least 19 points.
- D: At least 35 points of which at least 14 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 57 points of which at least 7 points at level A.
- A: At least 68 points of which at least 13 points at level A.

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

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

Programme: \_\_\_\_\_ Class: \_\_\_\_\_

**NO DIGITAL DEVICES ALLOWED**

1. Solve the equation  $2(3x - 18) = 0$

Answer:  $x =$  \_\_\_\_\_ (1/0/0)

2. A bag of meringues weighing 150 g costs SEK 21.  
What is the price per kilogram?

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

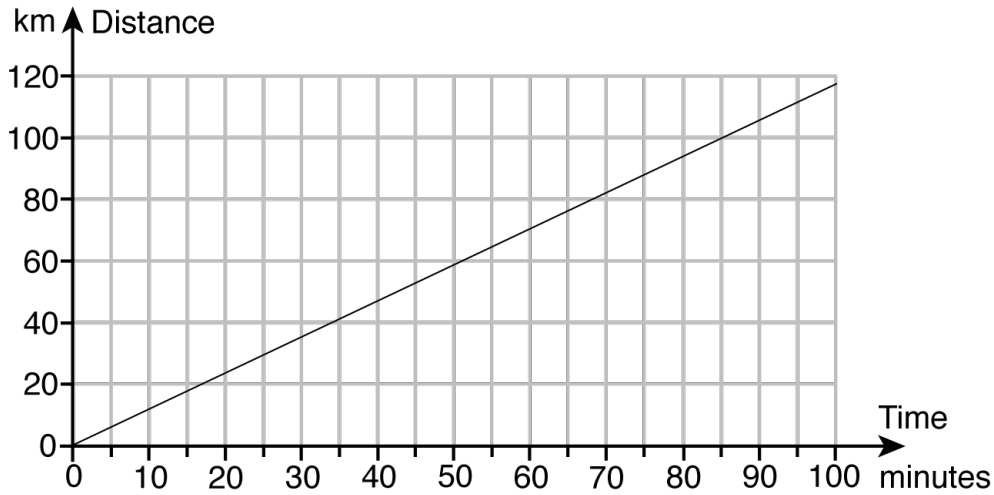


3. By what percentage have the prices risen between 2010 and 2014 according to the table?

Year	2010	2014
CPI (Consumer Price Index)	100	103

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

4. The diagram shows how far a person travels within a given time at a speed of 70 km/h.



- a) Draw the corresponding graph in the diagram for the speed of 90 km/h. (1/0/0)
- b) When Johan drives to work, he has an average speed of 90 km/h. It takes approximately 40 minutes. Determine, using the diagram, how much longer it would take to drive the same route if his average speed was instead 70 km/h. Show your solution.

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

5. All of the jackets in a shop are sold at a 40 % discount. You pay SEK 1 200 for a jacket. How much did it cost before the discount?



Answer: SEK \_\_\_\_\_ (0/2/0)

6. Circle the powers that have the same value.

$0^5$      $1^4$      $2^3$      $3^2$      $4^1$      $5^0$

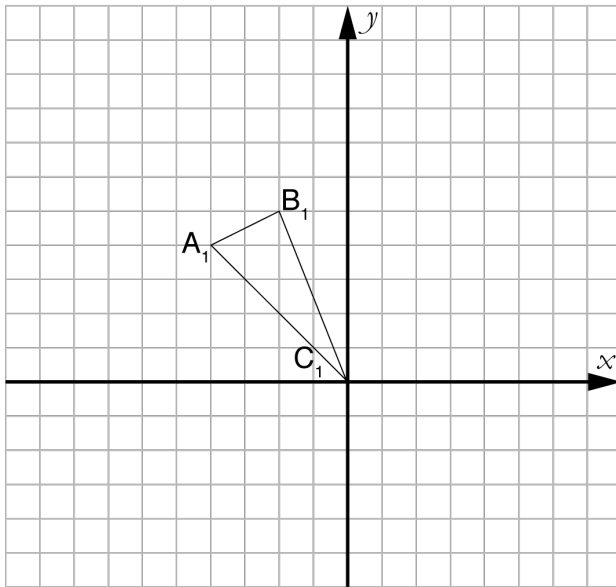
(0/1/0)

7. What growth factor corresponds to a price increase of 150 %?

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

(0/1/0)

8.



a) Reflect the triangle  $A_1B_1C_1$  in the y-axis. Mark the new triangle's reflected corners  $A_2$ ,  $B_2$  and  $C_2$ .

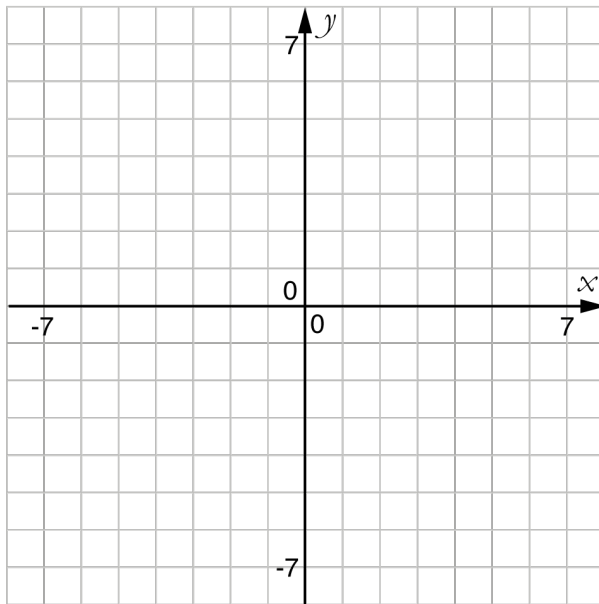
(1/1/0)

b) Let the reflected triangle's corner at the origin remain fixed. Rotate the triangle 90 degrees clockwise (to the right). Mark the new triangle's rotated corners  $A_3$ ,  $B_3$  and  $C_3$ .

(0/2/0)

9. Draw a possible graph for the function  $f$  in the coordinate system below. For function  $f$  it is given that:

- The domain is  $-5 \leq x \leq 6$
- $f(-3) = 0$
- The range is  $-2 \leq f(x) \leq 4$



(1/1/1)

10. Following statements are equivalences or implications. Mark statements that are equivalences with symbol  $\Leftrightarrow$  and statements that only are implications with symbol  $\Rightarrow$  or  $\Leftarrow$ .

The integer,  $x$ , ends with the digit zero  The integer,  $x$ , is divisible by two

$y \geq 2$    $y > 2$

$2z + 4 = 6$    $z = 1$

(0/1/1)



11. A team is due to play 130 matches in a season.  
 After playing 80 matches, they have won 48 of them.  
 How many of the 50 remaining matches must the team win  
 in order for the proportion of wins to be the same  
 as after the first 80 matches?

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

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

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

Answer:  $xy^2 =$  \_\_\_\_\_ (0/0/1)

13. Write as an inequality:  $a$  is at least 4 more than  $b$ .

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

14. The function  $f(x) = 2x - 3$  is given.

a) Determine  $f(-2)$

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

b) Simplify  $f(a + 1) - f(a)$   
 Show the simplification.

(0/0/2)





# Test result – Student summary

National test in mathematics, 1b autumn 2015

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>		4		4		4		12
<b>Part B</b>		8		10		7		25
<b>Part C</b>		2		3		3		8
<b>Part D</b>		14		18		6		38
<b>Total</b>		<b>28</b>		<b>35</b>		<b>20</b>		<b>83</b>

Part A	E	C	A	Score	Comment
Method and carrying through	+E <sub>B</sub> +E <sub>B</sub>	+C <sub>M</sub>	+A <sub>M</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>4</b>	<b>4</b>	<b>4</b>		

Part C	E	C	A	Score	Comment
Method and carrying through	+E <sub>PL</sub> +E <sub>P</sub>	+C <sub>P</sub>	+A <sub>PL</sub>		
Reasoning		+C <sub>R</sub>	+A <sub>R</sub>		
Communication		+C <sub>K</sub>	+A <sub>K</sub>		
<b>Total</b>	<b>2</b>	<b>3</b>	<b>3</b>		

### Grading limits

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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)