

Mathematics

Delprov B

1b

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 81 points.

Limit for test grade

E: At least 18 points.

D: At least 31 points of which at least 12 points at level C or higher.

C: At least 41 points of which at least 20 points at level C or higher.

B: At least 53 points of which at least 7 points at level A.

A: At least 63 points of which at least 11 points at level A.

Name: _____

Date of birth: _____

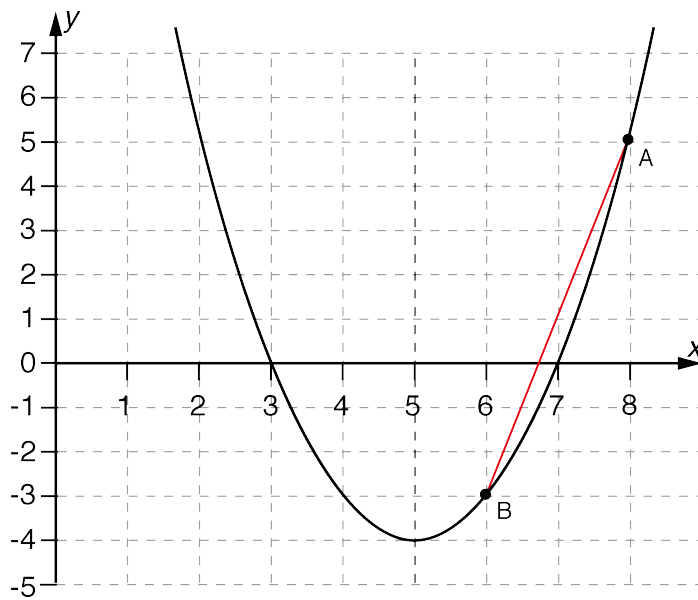
Programme: _____ Class: _____

Illustrations: Jens Ahlbom

1. Solve the equation $4x + 17 = 9$

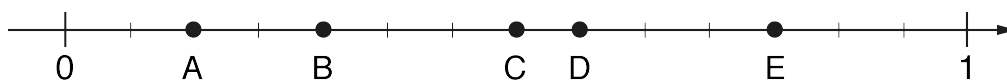
Answer: $x =$ _____ (1/0/0)

2. The line segment AB should be reflected in the line of symmetry $x = 5$.
Draw the reflected line.



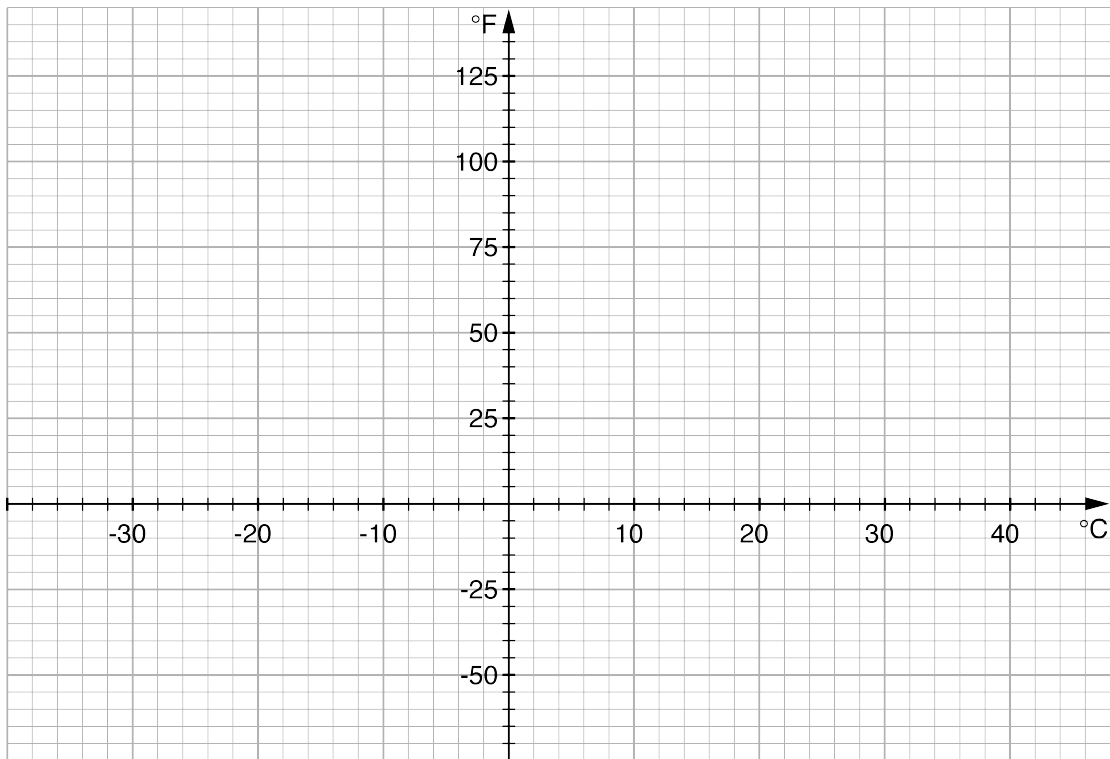
(1/0/0)

3. On the number line, the numbers A, B, C, D and E are indicated by points.
Which of the points correspond to the number $\frac{4}{7}$?



Answer: _____ (1/0/0)

4. The relation between temperatures measured in degrees Celsius ($^{\circ}\text{C}$) and degrees Fahrenheit ($^{\circ}\text{F}$) can be described as a linear relation.
 -18°C corresponds to roughly 0°F and 38°C corresponds to roughly 100°F .



- a) Draw a graph in the coordinate system showing the relation between temperatures measured in degrees Celsius ($^{\circ}\text{C}$) and degrees Fahrenheit ($^{\circ}\text{F}$).
- b) Use your graph to see how many degrees Fahrenheit ($^{\circ}\text{F}$) correspond to 0°C .

(1/0/0)

Answer: _____ $^{\circ}\text{F}$ (1/0/0)

5. Take the expression $4(x + 2) - 3(2x - 2)$

a) Calculate the value of the expression if $x = 1$. Answer: _____ (1/0/0)

b) Determine x so that the value of the expression is 18.
Show your solution.

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

6. Which (one or more) alternatives correspond to 0.12 %?
Circle your answer(s).

12 ‰

1.2 ‰

120 ‰

120 ppm

1200 ppm

(1/1/0)

7. All 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?

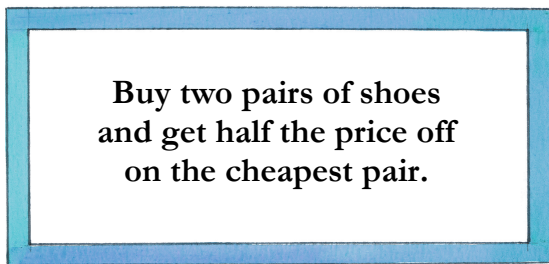
Answer: SEK _____ (0/1/0)



8. What is the value of the expression $3x + 12$ if $x + 4 = 12$?

Answer: _____ (0/1/0)

9. A shoe store has the following offer:



Lisa buys two pairs of shoes. Both pairs are the same price.
What percentage discount does she get on the full purchase?

Answer: _____ % (0/1/0)

10. Lisa thinks of a whole number between 40 and 50.

- The number is *not* divisible by 2.
- The number is *not* divisible by 3.
- The number is *not* a prime number.

What number is she thinking of?

Answer: _____ (0/1/0)

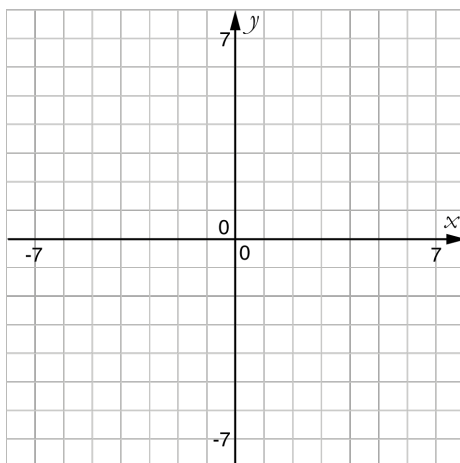
11. It is the maths teacher's birthday and her pupils want to surprise her with a cake (see picture). The teacher first wonders why only three of the six candles are lit, but then realise that the pupils have written her age in binary form, base two. How old is the maths teacher?



Answer: _____ (0/1/0)

12. 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)

13. 15 % of a is equal to b . Write 30 % of $3a$ expressed in terms of b .
Show your solution.

Answer: _____ (0/1/1)

14. There are many different values of x and y that solve the equation $8x - y = 10$.
Find a solution for the equation where x and y have the same value.

Answer: _____ (0/0/1)

15. Solve the equation $\left((\sqrt{3})^x\right)^4 = 3^6$
Show your solution.

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

Compilation of student results

National test in mathematics 1b spring 2017

Part A

	Score		
	E	C	A
Method and carrying through			
Presentation			
Total			
Maximum score	3	4	3

Part B

	Score		
	E	C	A
1			
2			
3			
4 a)			
4 b)			
5 a)			
5 b) 1			
5 b) 2			
6 1			
6 2			
7			
8			
9			
10			
11			
12 1			
12 2			
12 3			
13 1			
13 2			
14			
15 1			
15 2			
Total			
Maximum score	9	10	4

Part C

	Score		
	E	C	A
Method and carrying through			
Presentation			
Total			
Maximum score	4	4	4

Part D

	Score		
	E	C	A
17 1			
17 2			
18 a)			
18 b) 1			
18 b) 2			
19 a)			
19 b) 1			
19 b) 2			
19 c) 1			
19 c) 2			
20 a)			
20 b) 1			
20 b) 2			
20 c) 1			
20 c) 2			
21 1			
21 2			
21 3			
22 1			
22 2			
23 1			
23 2			
23 3			
24 1			
24 2			
24 3			
25 a) 1			
25 a) 2			
25 b) 1			
25 b) 2			
25 b) 3			
26 a)			
26 b) 1			
26 b) 2			
26 c) 1			
26 c) 2			
Total			
Maximum score	11	17	8

Name: _____

Summary

	E	C	A	Total
Total				
Maximum score	27	35	19	81

Test grade

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.