Mathematics

Delprov B

1b

Elevens namn och klass/grupp

Skolverket

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 47 points of which at least 22 points at level C or higher.
B: At least 59 points of which at least 7 points at level A.
A: At least 72 points of which at least 13 points at level A.

Name: _____

Date of birth: _____

Program: _____ Class:_____

Illustration: Jens Ahlbom

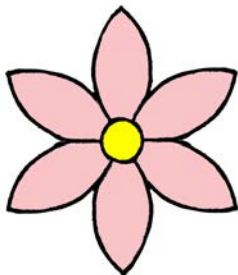**1.** Solve the equation $3(x + 1) = 60$ Answer: $x =$ _____   (1/0/0)

2. Write the number 42 as prime factors.   Answer: _____   (1/0/0)

3. How many lines of symmetry does the figure below have?

Answer: _____   (1/0/0)

4. The carbon dioxide concentration of air is 393 ppm.
Write this concentration as a decimal.   Answer: _____   (1/0/0)

5. Determine the square root of 0.25   Answer:_____   (1/0/0)

6. Give an example of a solution
to the equation $3x^4 = 48$ Answer: $x =$ _____   (1/0/0)

7. The number 1011_2 is written in base 2 (a binary number).
Which base 10 number does it correspond to?

                                              Answer:_____   (1/0/0)

8. Which statement(s) are correct concerning $x + y = 11$?
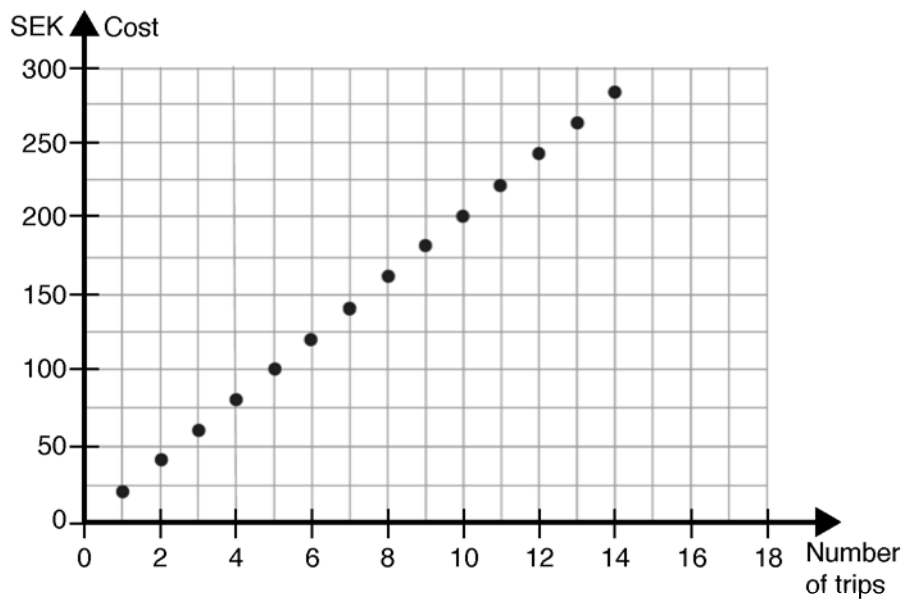Circle your answer(s).   (1/0/0)

$x = y - 11$	x and y are always equal
x is always greater than y	If $y = 2$, then $x = 9$

9. Elin has started in a new school and has to go to and from school by bus every day. The diagram shows the cost of single trips, i.e. for a trip to or from school.

a) A monthly bus pass costs SEK 230. What is the minimum number of single trips Elin has to make in order for it to be cheaper for her to buy a monthly bus pass?

Answer:_____ (1/0/0)

b) What does a single trip cost according to the diagram? Motivate your answer.

(1/1/0)

10. Determine the value of $3x - y$ if $x = 0.2$ and $y = -0.2$ Answer:_____   (0/1/0)

11. Enter the appropriate symbol in the box between the inequalities below.
    Choose between the following symbols: $\Leftarrow$, $\Rightarrow$ and $\Leftrightarrow$.
    Motivate your choice.

    $x < -1$ ☐ $x < -4$

    (1/2/0)

12. A triangle has a base that is 3 cm longer than its height.
    Draw a figure and write an algebraic expression for the triangle's area.
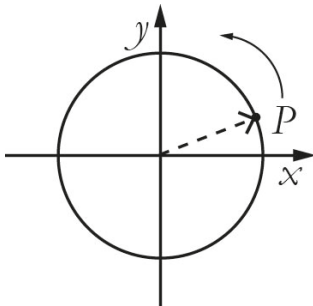   Show your solution.

    Answer:_____   (0/2/0)

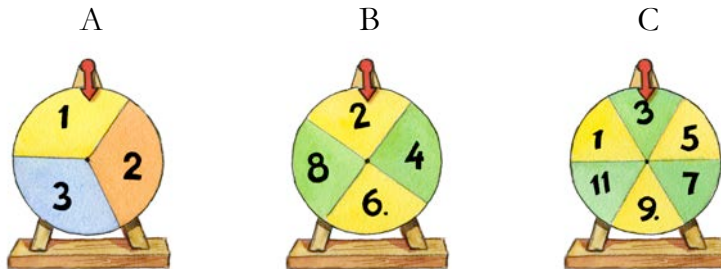**13.** Show that $\dfrac{\left(2^4\right)^8}{\left(4^8\right)^2} = 1$

(0/2/1)

14. 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° counter clockwise, now pointing at point *S*.
What are the coordinates of point *S*?

Answer:_____   (0/1/1)

15. 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.

A   B   C

(0/1/2)

Test result – Student summary

National test in mathematics 1b spring 2015

Name:	Test grade:

	E-points		C-points		A-points		Total	
	Your score	Maximum score	Your score	Maximum score	Your score	Maximum score	Your score	Maximum score
Part A		4		5		5		14
Part B		11		10		4		25
Part C		3		6		4		13
Part D		13		18		10		41
Total		**31**		**39**		**23**		**93**

Part A	E	C	A	Score	Comment
Method and carrying through	$+E_B$ $+E_M$	$+C_B$ $+C_M$	$+A_B$ $+A_M$		
Reasoning	$+E_R$ $+E_R$	$+C_R$ $+C_R$	$+A_R$ $+A_R$		
Communication		$+C_K$	$+A_K$		
Total	**4**	**5**	**5**		

Part C	E	C	A	Score	Comment
Method and carrying through	$+E_B$ $+E_P$ $+E_{PL}$	$+C_B$ $+C_{PL}$ $+C_{PL}$	$+A_{PL}$ $+A_M$		
Reasoning		$+C_R$ $+C_R$	$+A_R$		
Communication		$+C_K$	$+A_K$		
Total	**3**	**6**	**4**		

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:

PRIM gruppen