

Mathematics

Delprov B

1c

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 92 points.

Limit for test grade

E: At least 17 points.

D: At least 32 points of which at least 13 points at level C or higher.

C: At least 43 points of which at least 22 points at level C or higher.

B: At least 57 points of which at least 8 points at level A.

A: At least 68 points of which at least 15 points at level A.

Name: _____

Date of birth: _____

Program: _____ Class: _____

Illustration: Jens Ahlbom

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

2. 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

$$\text{If } y = 2, \text{ then } x = 9$$

3. Simplify the expression $4x^2 + 3x(x + 2)$
as far as possible. Answer: _____ (1/0/0)

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

5. Give an example of a solution to the equation $3x^4 = 48$

Answer: $x =$ _____

(1/0/0)

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

Answer: _____

(1/0/0)

7. Add the vectors $\vec{u} = (3,4)$ and $\vec{v} = (2,-5)$

Answer: _____

(1/0/0)

8. Determine the value of $3x - y$ if $x = 0.2$ and $y = -0.2$

Answer: _____

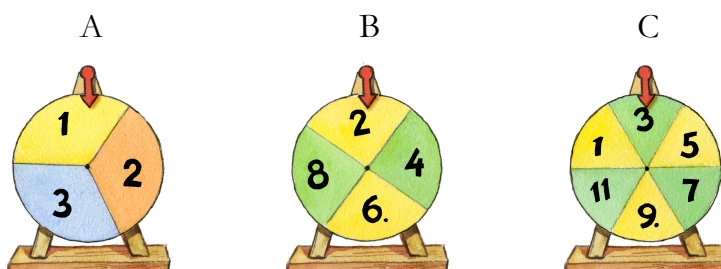
(0/1/0)

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

$$x < -1 \quad \boxed{} \quad x < -4$$

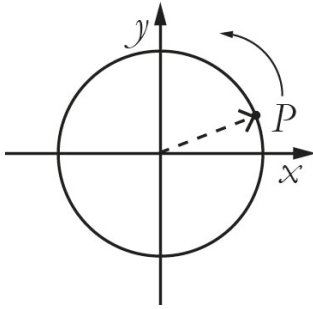
(1/2/0)

10. 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)

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



Answer: _____

(0/1/1)

12. Show that $\frac{(2^4)^8}{(4^8)^2} = 1$

(0/2/1)

13. Which of the number(s) below is/are less than 0.2 per mille?
 Circle your answer(s).

1.9×10^{-3}

1.9×10^{-4}

2.1×10^{-3}

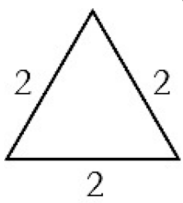
2.1×10^{-4}

2.1×10^{-2}

(0/0/1)

14. Determine $\cos 30^\circ$ with the help of the figure. Show your solution.

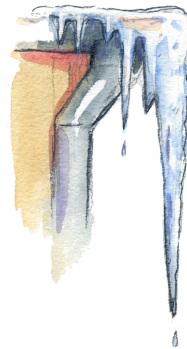
(units)



Answer: $\cos 30^\circ =$ _____

(0/1/1)

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



Answer: _____

(0/0/1)

16. Determine n if $4^n + 4^n + 4^n + 4^n = 4^{12}$

Answer: $n =$ _____

(0/0/2)

Test result – Student summary

National test in mathematics 1c spring 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
Part A		4		5		5		14
Part B		8		8		9		25
Part C		3		6		4		13
Part D		12		18		10		40
Total		27		37		28		92

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		

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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