

Mathematics

Part B

Student Booklet

1b

Elevens namn och klass/grupp

Instructions – Part B

Time for the test 90 minutes for Part B and Part C. You will get both parts at the same time. We recommend that you use no more than 45 minutes for work on Part B. When you have handed in your answers to Part B you may start using digital devices.

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

Tasks This part consists of tasks to be solved without using digital devices. 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 90 points.

Limit for test grade

E: At least 18 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 24 points at level C or higher.

B: At least 59 points of which at least 7 points at level A.

A: At least 69 points of which at least 12 points at level A.

Name: _____

Date of birth: _____

Secondary program: _____ Class: _____

Illustration: Jens Ahlbom

1. What change factor corresponds to a price increase of 40 %? Answer: _____ (1/0/0)

2. Write $7^{-4} \cdot (7^2)^3$ as a power to the base of 7. Answer: _____ (2/0/0)

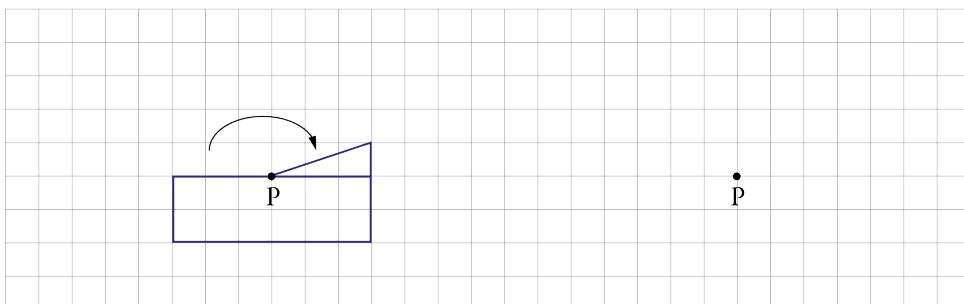
3. Determine $f(0.3)$ when $f(x) = 3x - 0.2$ Answer: _____ (1/0/0)

4. Ali changes SEK 750 into Thai Baht (THB) and gets 3 000 THB. Katarina changes SEK 500 at the same exchange rate. How much does she get? Answer: _____ THB (1/0/0)

5. The figure shown below is to be rotated a half turn clockwise around point P. Draw the figure after the rotation.

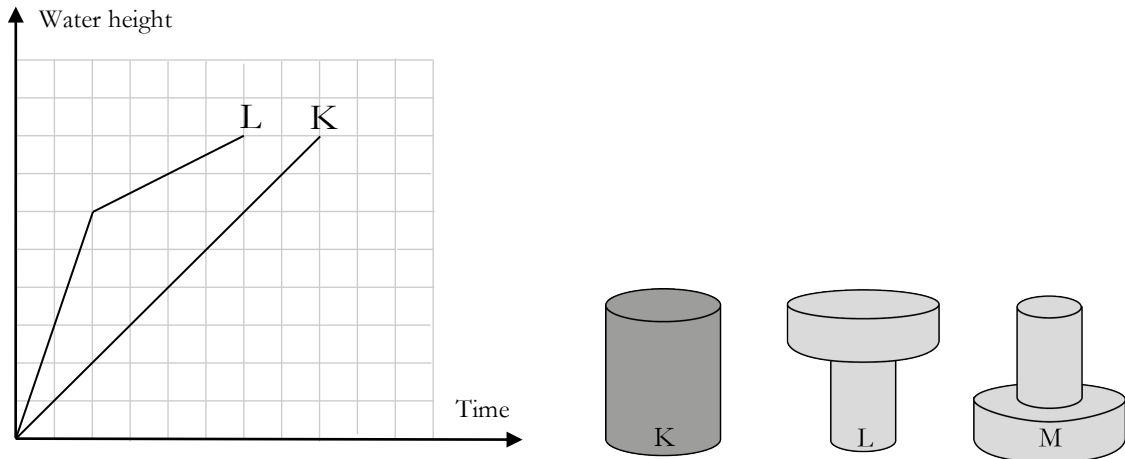
Before rotation:

After rotation:



(2/0/0)

6. The containers K, L and M, all with the same height, are filled with water at a constant rate. The graphs show how the height of the water increases for containers K and L.



- a) Why does the water rise faster at the start in container L than in container K? Show your reasoning in the box.

(1/0/0)

- b) Draw the graph for container M in the coordinate system above.

(2/1/0)

7. Leo tosses a coin twice in a row. What is the probability that he, regardless of order, will get exactly one head and one tail?



Answer: _____

(0/1/0)



8. You are to drive a distance of 60 kilometres. What will the time gain in minutes be, if your average speed increases from 90 km/h to 100 km/h? Show your solution in the box.

Answer: _____ min

(1/2/0)

9. 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 can describe how the cost K depends on the driven distance x km? Circle your answer/answers.

$K = 375$

$K = 375 + 2.50x$

$K = 375 + 2.50x + 100$

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

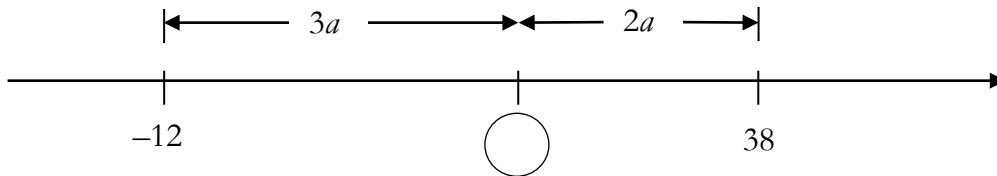
$K = 475 + 2.50x$

(0/1/1)

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

(0/2/1)

10. Which number should be written in the circle?
Show your solution in the box.



Answer: _____

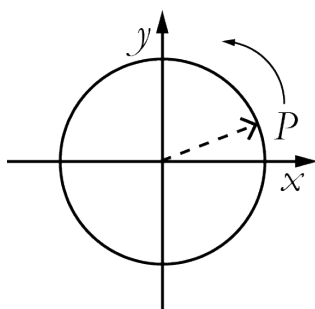
(0/1/1)

11. Which number or numbers shown below have the same value as the number 23_{10} ? Circle your answer/answers.

1010_2 212_3 21_5 31_5 32_7

(0/1/1)

12. A circle in a coordinate system has its centre at the origin.
A pointer in the circle is pointing at 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)

Resultatredovisning – Sammanfattning Elev

Nationellt kursprov i matematik, kurs 1b vt 2013

Namn:	Provbetyg:
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	E-poäng		C-poäng		A-poäng		Totalt	
	Din poäng	Max-poäng	Din poäng	Max-poäng	Din poäng	Max-poäng	Din poäng	Max-poäng
Del A – muntlig del		4		5		5		14
Del B		11		10		5		26
Del C		3		4		4		11
Del D		10		20		9		39
Totalt		28		39		23		90

Del A – muntlig del	E	C	A	Poäng	Motivering
Metod och genomförande	+E _{PL} +E _M	+C _B +C _M	+A _B +A _M		
Resonemang	+E _R +E _R	+C _R +C _R	+A _R +A _R		
Kommunikation		+C _K	+A _K		
Summa					

Del C	E	C	A	Poäng	Motivering
Metod och genomförande	+E _{PL} +E _{PL}	+C _P	+A _{PL} +A _P		
Resonemang	+E _R	+C _R +C _R	+A _R		
Kommunikation		+C _K	+A _K		
Summa					

Kravgränser

Gräns för provbetyget

E: Minst 18 poäng.

D: Minst 35 poäng varav minst 13 poäng på lägst nivå C.

C: Minst 47 poäng varav minst 24 poäng på lägst nivå C.

B: Minst 59 poäng varav minst 7 poäng på nivå A.

A: Minst 69 poäng varav minst 12 poäng på nivå A.

Kommentarer:

Blanketten finns att hämta på www.prim-gruppen.se