Kursprov, höstterminen 2012

Mathematics

Part B

Student Booklet

1b

Elevens namn och klass/grupp

Skolverket

NO DIGITAL DEVICES ALLOWED

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 91 points.

Lower limit for test grade

E: At least 20 points.
D: At least 32 points of which at least 10 points at level C or higher.
C: At least 43 points of which at least 19 points at level C or higher.
B: At least 57 points of which at least 7 points at level A.
A: At least 66 points of which at least 12 points at level A.

Name: _____

Date of birth: _____

Secondary program: _____

Part B

1. What percentage increase/decrease corresponds to a change factor of 0.4?

Answer: _____ %

(2/0/0)

2. Solve the equation $9x + 102 = 103$

Answer: $x =$ _____

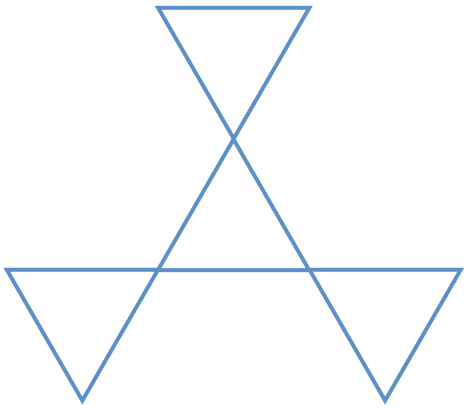
(1/0/0)

3. What value of x does not fulfil the condition $2x + 1 > 5$? Circle your answer.

7 5 4 3 2

(2/0/0)

4. Four identical equilateral triangles have been placed as shown in the figure.
Draw all the lines of symmetry in the figure.



(1/1/0)

5. The carbon dioxide concentration of air is 393 ppm. Write this concentration as a decimal.

Answer: _____

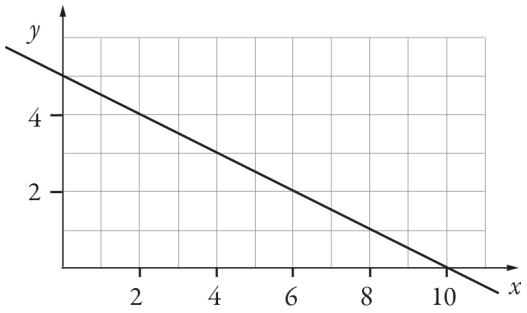
(1/0/0)

6. Calculate the value of $a^3 - 3a$ when $a = 3$

Answer: _____

(0/1/0)

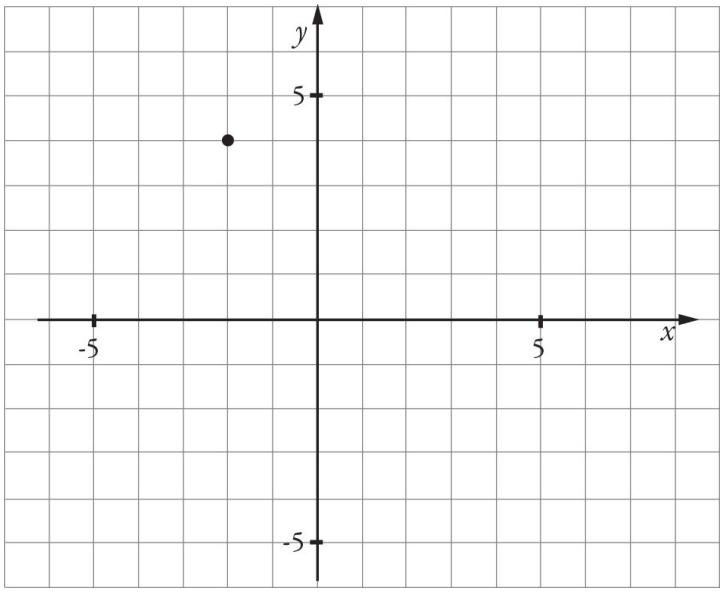
7. The figure below shows the graph of the function $y = f(x)$.



a) Use the graph to determine $f(2)$. Answer: $f(2) =$ _____ (0/1/0)

b) Use the graph to solve the equation $f(x) = 2$. Answer: $x =$ _____ (0/1/0)

8.



The point $(-2, 4)$ is marked in the coordinate system.

a) Mirror the point $(-2, 4)$ using the y axis as the line of symmetry.
Mark the mirror point in the coordinate system. (1/0/0)

b) Mirror the point $(-2, 4)$ using the graph of $y = x$ as the line of symmetry.
Mark the mirror point in the coordinate system. (0/2/0)

9. There are two sweets of the same size left in a bag.
One is green. The other sweet is either red or green.
If you take a sweet, what is the probability that the
sweet you take will be green? Show your solution in the box.

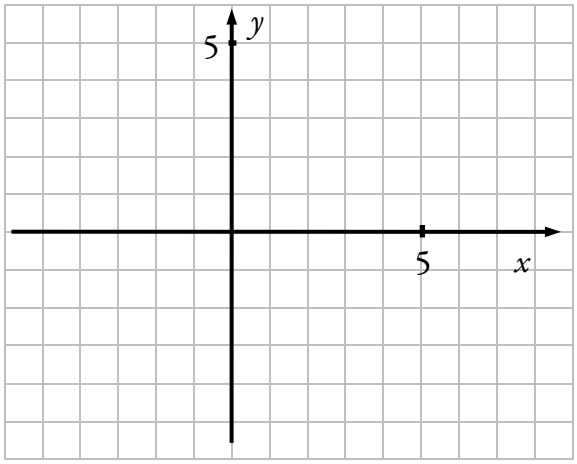
Answer:_____ (0/2/0)

10. The number 113 is written in base 7. Convert the number to base 10.
Show your solution in the box.

Answer:_____ (0/2/0)

11. Determine n if $2^4 \cdot 3^8 = 9^n \cdot 6^4$ Answer: $n =$ _____ (0/0/2)

12. Sketch in the coordinate system where the points fulfil both the conditions: $x + y \leq 0$ and $x \geq 2$.
Give reasons for your sketch. (0/2/2)



PRIM gruppen