Mathematics

Delprov B

1c

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 84 points.

Limit for test grade

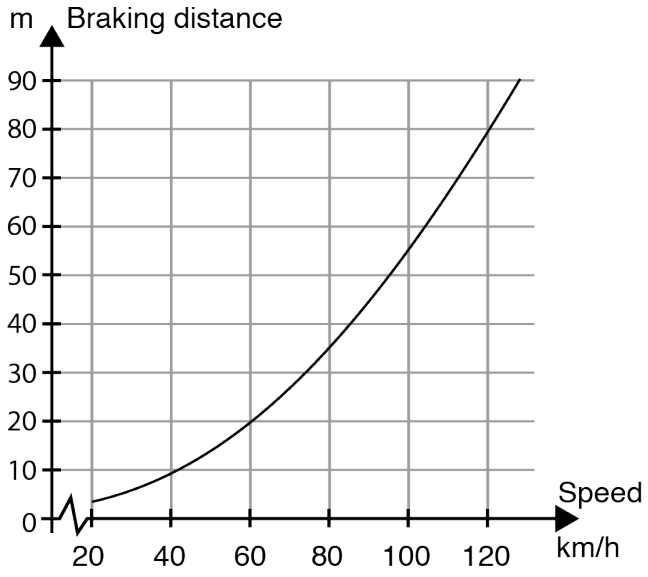
E: At least 18 points.
D: At least 32 points of which at least 13 points at level C or higher.
C: At least 40 points of which at least 20 points at level C or higher.
B: At least 55 points of which at least 8 points at level A.
A: At least 64 points of which at least 14 points at level A.

Name: _____

Date of birth:_____

Programme:_____ Class: _____

1. A car traveling at 60 km/h on a dry road has a braking distance of approximately 20 m. What is the car's speed when the braking distance is doubled?



Answer:_____ km/h (1/0/0)

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

Answer:_____ (1/0/0)

3. Simplify the expression $4x^2 - 3x(x + 2)$ as far as possible.

Answer:_____ (1/0/0)

4. Write as a power of 7

$7^{-4} \times (7^2)^3$

Answer:_____ (1/0/0)

5. Solve the inequality $-3x + 4 \geq -5$

Answer:_____ (1/0/0)

6. The diagram shows how the price depends on weight, for two different kinds of coffee. How big is the difference in price per hectogram? Show your solution.

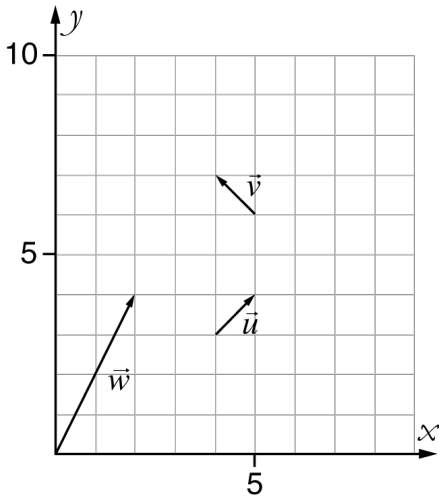
Answer: SEK_____ (1/1/0)

7. The following statements are either equivalences or implications. Mark all the statements that are equivalences with the symbol ⇔ and statements which are only implications with symbol ⇒ or ⇐.

In triangle A, the sum of the squares of the catheti is equal to the square of hypotenuse.	☐	Triangle A has one right angle.
Triangle B has one angle of 90 degrees.	☐	Triangle B has no angle greater than 90 degrees.
Triangle C has two acute angles.	☐	Triangle C has one right angle.

(1/1/0)

8. In the following coordinate system, $\vec{u}$, $\vec{v}$ and $\vec{w}$. represent vectors.



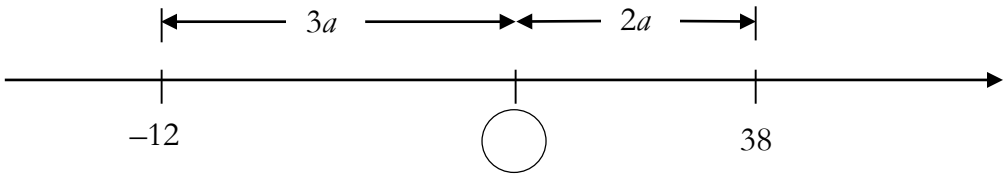
a) Determine the length (absolute value) of vector $\vec{w}$.
Show your solution.

Answer:_____ units (0/2/0)

b) Write an expression for vector $\vec{w}$ with the help of vectors $\vec{u}$ and $\vec{v}$. Answer:_____ (0/1/0)

9. Determine and simplify $f(x + 2)$ if $f(x) = 3x - 7$ Answer:_____ (0/0/1)

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



Answer:_____ (0/1/1)

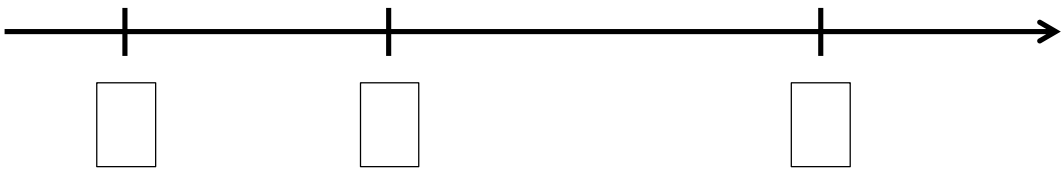
11. What is the value of the following expression if $t = 6$?

$$\sqrt{\frac{25t^4}{9}}$$

Answer:_____ (0/0/1)

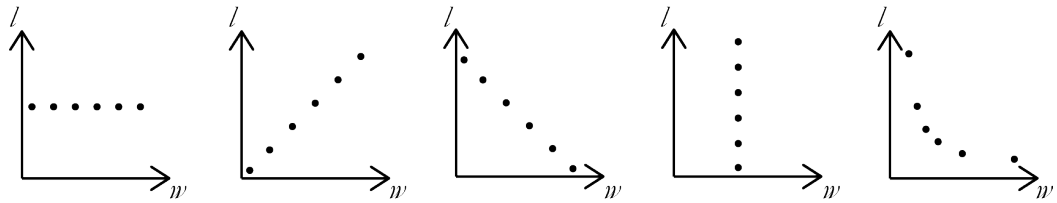
12. Place the variables x, y and z in the boxes on the number axis for the following inequalities to be valid:

$x > y$
$z < x$
$-y > -z$



(0/0/1)

13. Berit is going to examine various possible values of length (l) and width (w) in a rectangle with an area of 12 cm². She marks different values for length and width in a diagram. What should her diagram look like?
Circle your answer.



(0/0/1)

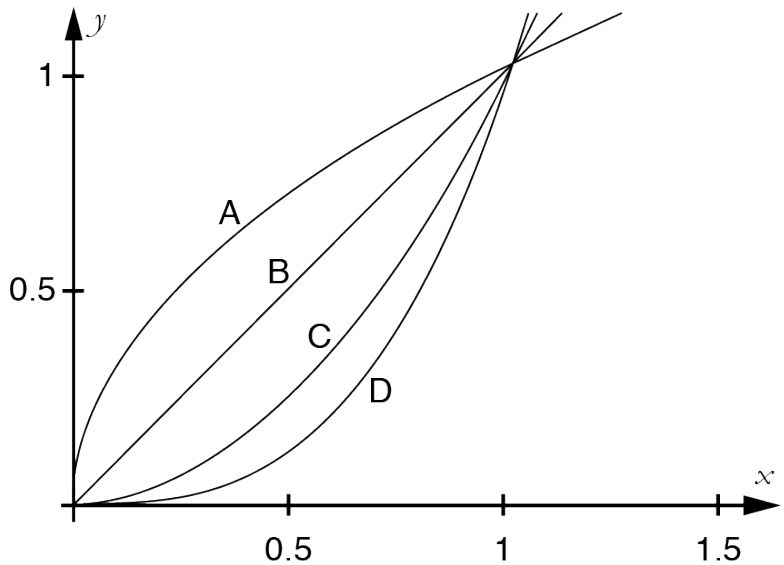
14. In what base are you calculating if 5 + 5 = 14? Answer:_____ (0/0/1)

15. The following graphs are shown in the figure:
$y = f(x)$, $y = g(x)$, $y = h(x)$, $y = s(x)$

Combine the functions f, g, h and s with correct graph if

$f(x) = x$ $g(x) = \sqrt{x}$ $h(x) = x^3$ $s(x) = x^2$

Graph:_____ Graph:_____ Graph:_____ Graph:_____ (0/0/1)



Test result – student summary

National test in mathematics 1c spring 2016

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		7		6		7		20
Part C		4		4		4		12
Part D		9		20		9		38
Total		**24**		**35**		**25**		**84**

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

Part C	**E**	**C**	**A**	**Score**	**Comment**
Method and carrying through	$+E_P$ $+E_{PL}$ $+E_P$	$+C_B$ $+C_P$	$+A_{PL}$ $+A_P$		
Reasoning	$+E_R$	$+C_R$	$+A_R$		
Communication		$+C_K$	$+A_K$		
Total	4	4	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

PRIM gruppen