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 93 points.

Limit for test grade
E: At least 20 points.
D: At least 34 points of which at least 12 points at level C or higher.
C: At least 46 points of which at least 22 points at level C or higher.
B: At least 60 points of which at least 8 points at level A.
A: At least 70 points of which at least 15 points at level A.

Name: _____

Date of birth: _____

Program: _____ Class: _____

Illustration: Jens Ahlbom

1. Write 20 as a product of prime numbers.   Answer:_____   (1/0/0)

2. The average length of a particular bacterium is 0.000000313 m.
What number should be in place of x when writing this
length in scientific notation ($3.13 \cdot 10^x$ m)?

Answer:_____   (1/0/0)

3. The diagram below shows the number of internet users in the world
in 1999 and 2009. In 1999, there were about 350 million internet users.
Approximately how many users were there in 2009?
Show your solution.
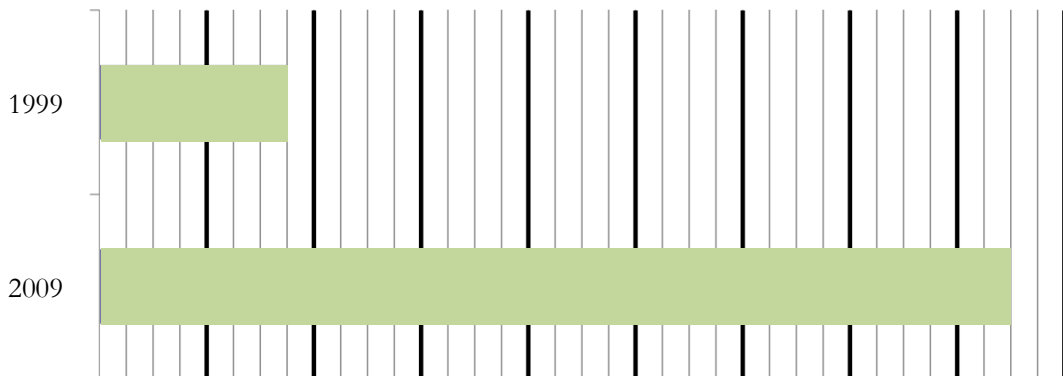
Answer:_____   (2/0/0)

4. What number should be in the box to make the equality correct?

$$15 \cdot 0.1 = \frac{30}{\Box}$$

Answer:_____ (1/0/0)

5. The maximum number of pulse beats per minute, P, is called
the maximum pulse. According to one model, the maximum pulse
can be calculated using the formula

$P = 220 -$ the person's age

Filip has a maximum pulse of 190.
Harald is half Filip's age.
What is Harald's maximum pulse
according to the model?　　　　　　　　　Answer:_____ pulse beats/min (2/0/0)

6. Uppgift under sekretess. Kommer att läggas till så snart sekretesstiden har gått ut.

7. What number is exactly halfway between $\dfrac{1}{4}$ and $\dfrac{1}{2}$?   Answer:_____   (0/1/0)

8. Oskar, Krister and Fredrik have all solved the same equation.
Only one solution is correct.

Oskar	Krister	Fredrik
$3x - 2(5-x) = 2x + 5$ $3x - 10 + x = 2x + 5$ $2x = 15$ $x = 7,5$	$3x - 2(5-x) = 2x + 5$ $3x - 10 + 2x = 2x + 5$ $3x = 15$ $x = 5$	$3x - 2(5-x) = 2x + 5$ $3x - 10 - 2x = 2x + 5$ $3x = 15$ $x = 5$

a) Who has solved the equation correctly?   Answer: _____   (1/0/0)

b) What are the errors in the other two solutions?

(1/1/1)

9. Infusions (or intravenous drips) are used to deliver fluids and drugs to patients. Nurses must be able to calculate the drip rate, *D*, in drops per minute.

They use the formula $D = \dfrac{d \cdot v}{60 \cdot n}$ where

d is the drop factor measured in drops per millilitre,
v is the infusion volume in millilitres and
n is the number of hours that the drip must be in place.

a) A nurse wants to double the amount of time the drip is in place. Describe exactly how *D* changes if *n* is doubled but *d* and *v* do not change.
Write your answer in the box.

Answer:

(0/2/0)

b) Nurses must also be able to calculate the infusion volume, *v*, from the drip rate, *D*.

An infusion with a drip rate of 50 drops per minute must be given to a patient for 3 hours. For this infusion, the drop factor is 25 drops per millilitre.
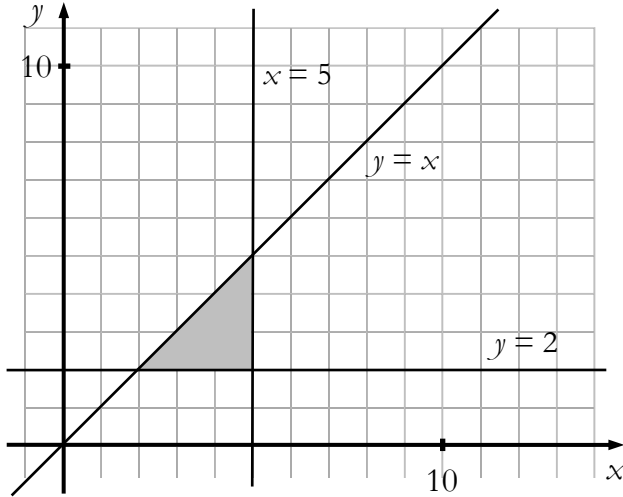
What is the infusion volume in millilitres (ml)?   Answer:_____ ml   (0/0/1)

10. Draw the inequalities which together enclose the shaded area.
Write your answer in the box.

Answer:

(0/1/1)

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

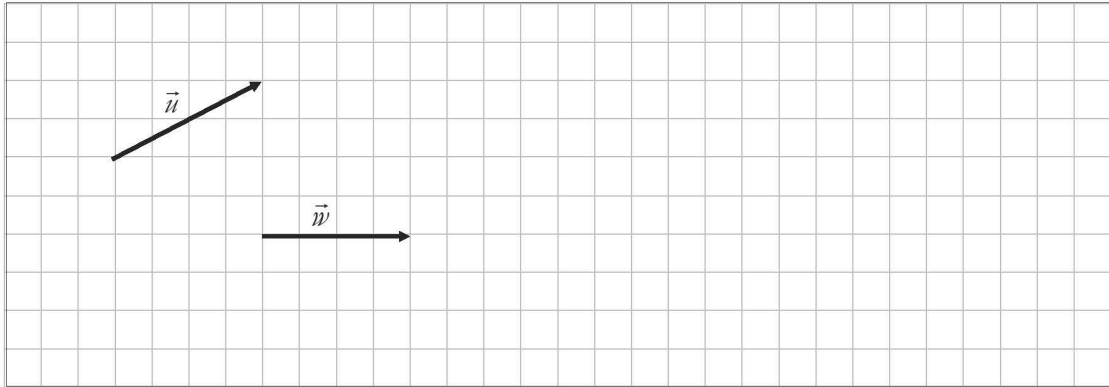| Two angles of the triangle are equal. | ☐ | The triangle is isosceles. |
| Two angles of the triangle are equal. | ☐ | The triangle is equilateral. |
| The quadrilateral has equally long sides. | ☐ | The quadrilateral is a square. |

(0/1/1)

12. The grid shows representatives of the vectors $\vec{u}$ and $\vec{w}$
In the same grid, draw a representative of the vector $\vec{v}$ which satisfies $2\vec{u} - 2\vec{v} = \vec{w}$
Show your solution.

(0/0/2)

13. Write $\sqrt{a^6} \cdot \sqrt[3]{a^6}$ as a power with the base a.   Answer:_____   (0/0/1)

14. Sara knows the price of a litre of milk in the year 1985. She is now
going to calculate the price in the year 2011 with the help of an
index table. What information does she need from the index table
in order to solve the problem?

1. The base year is 1980.

2. The index figures for 1985 and 2011.
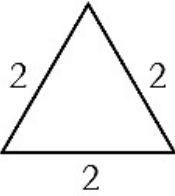
She has sufficient information to solve the problem…
Mark your answer with a cross.

☐ in (1) but not in (2)

☐ in (2) but not in (1)

☐ in (1) and (2) combined

☐ in (1) and in (2) separately

☐ in neither (1) nor (2)

(0/0/1)

15. Determine cos 30° with the help of the figure. Show your solution.

(units)

Answer: <u>cos 30° = </u>   (0/1/1)

Resultatredovisning – Sammanfattning Elev

Nationellt kursprov i matematik, kurs 1c vt 2014

Namn:	Provbetyg:

	E-poäng		C-poäng		A-poäng		Totalt	
	Din poäng	Max-poäng	Din poäng	Max-poäng	Din poäng	Max-poäng	Din poäng	Max-poäng
Delprov A		4		5		5		14
Delprov B		10		7		9		26
Delprov C		3		4		3		10
Delprov D		12		21		10		43
Totalt		**29**		**37**		**27**		**93**

Delprov A	E	C	A	Poäng	Motivering
Metod och genomförande	$+E_P$ / $+E_{PL}$	$+C_B+C_{PL}$	$+A_P+A_{PL}$		
Resonemang	$+E_R$ / $+E_R$	$+C_R$ / $+C_R$	$+A_R$ / $+A_R$		
Kommunikation		$+C_K$	$+A_K$		
Summa	**4**	**5**	**5**		

Delprov C	E	C	A	Poäng	Motivering
Metod och genomförande	$+E_{PL}$ / $+E_P$	$+C_P$ / $+C_{PL}$	$+A_{PL}$		
Resonemang	$+E_R$	$+C_R$	$+A_R$		
Kommunikation		$+C_K$	$+A_K$		
Summa	**3**	**4**	**3**		

Kravgränser

Gräns för provbetyget

E: Minst 20 poäng.
D: Minst 34 poäng varav minst 12 poäng på lägst nivå C.
C: Minst 46 poäng varav minst 22 poäng på lägst nivå C.
B: Minst 60 poäng varav minst 8 poäng på nivå A.
A: Minst 70 poäng varav minst 15 poäng på nivå A.

Kommentarer:

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gruppen