Status	Finished
Started	Thursday, 11 September 2025, 12:00 PM
Completed	Thursday, 11 September 2025, 12:25 PM
Duration	25 mins 22 secs
Marks	3.00/3.00
Grade	**3.00** out of 3.00 (**100**%)

Information

Information

This page contains all the problems for this test. The very last problem asks you to contact the person in charge of the exam and tell him or her the 4-digit key given in the problem text. In return you will be given a 5-digit signing code which you must give as the answer to the problem.

This problem does not count towards the final score, but **tests missing this code will not count towards the final grade**.

The following rules apply:

- Total time allowed: 30 minutes. The test will automatically close if time runs out.
- UiA's usual rules in regards to cheating on exams apply.

Question **1**
Correct
Mark 1.00 out of 1.00

We use the notation $\{x \cdot n | n \in \mathbb{N}\}$ for all natural multiples of x.

Compute the following sets.

$\{5 \cdot n | n \in \mathbb{N}\} \cup \{30 \cdot n | n \in \mathbb{N}\} = \{$ [5] $\cdot n | n \in \mathbb{N}\}$

Your last answer was interpreted as follows:

$$5$$

$\{12 \cdot n | n \in \mathbb{N}\} \cup \{4 \cdot n | n \in \mathbb{N}\} = \{$ [4] $\cdot n | n \in \mathbb{N}\}$

Your last answer was interpreted as follows:

$$4$$

$\{4 \cdot n | n \in \mathbb{N}\} \cap \{20 \cdot n | n \in \mathbb{N}\} = \{$ [20] $\cdot n | n \in \mathbb{N}\}$

Your last answer was interpreted as follows:

$$20$$

$\{24 \cdot n | n \in \mathbb{N}\} \cap \{20 \cdot n | n \in \mathbb{N}\} = \{$ [120] $\cdot n | n \in \mathbb{N}\}$

Your last answer was interpreted as follows:

$$120$$

Question **2**

Correct

Mark 1.00 out of 1.00

Compute the prime factorizations of the following natural numbers.

Write the answer in the following form (p_1^e_1 * p_2^e_2 * ... p_n^e_n), which is shown as:

$$p_1^{e_1} \cdot p_2^{e_2} \cdot \ldots \cdot p_n^{e_n}$$

where p_i is a prime and e_i is a natural number. All the primes p_i must be distinct.

number	prime factors
144	2^4*3^2 Your last answer was interpreted as follows: $2^4 \cdot 3^2$
534	2^1*3^1*89^1 Your last answer was interpreted as follows: $2^1 \cdot 3^1 \cdot 89^1$
575	5^2*23^1 Your last answer was interpreted as follows: $5^2 \cdot 23^1$

Question **3**

Correct

Mark 1.00 out of 1.00

Consider the grammar

$$\Big(\{a, b, c\}, \{S, A, B, C\}, S, \{(S, A), (A, Aa), (A, aA), (B, bB), (C, Cc), (C, c)\} \Big).$$

Select all the strings that can be generated by this grammar.

- ☐ abbbcc
- ☐ bb
- ☐ ab
- ☐ abba
- ☐ acc
- ☐ aaab
- ☐ bc
- ☐ abcccc
- ☐ a
- ☐ c
- ☑ None of the above

Question **4**

Correct

Mark 0.00 out of 0.00

Signing code

Before closing the test you must answer this problem with a signing code given to you by the person in charge of the test.

Tests missing this signing code will be ignored and will not count towards the final score.

Key: 112

Signing code: | 39726 |

Your last answer was interpreted as follows:

39726

◄ Technical test

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