



Module 10 : Number Theory I (?q=onlinecourse/course/43604)

Number Theory I Exercise

- **วิชชาภัทร จินดาภัก** previously submitted answers to this quiz/test on 02-Nov-2023 @ 10:02:12 and obtained **14** correct answers out of **14**.
- This test/quiz can be taken many times.
- Correct answers will NOT be revealed after submission.

undefined

1 For question 1-6

Let x and y be real numbers, and n be a nonnegative integer. Please answer whether it is **True or False**.

From previous attempt

$\lfloor x \rfloor = \lceil x \rceil$ if and only if x is an integer

True

False

2 $\lfloor x - n \rfloor = \lfloor x \rfloor - n$

True

False

From previous attempt

3 $x > n$ if and only if $\lfloor x \rfloor > n$

True

False

From previous attempt

4 $x \leq n$ if and only if $\lfloor x \rfloor \leq n$

True

False

From previous attempt

5 $\lfloor nx \rfloor \geq n \lfloor x \rfloor$

True

False

From previous attempt

6 $\lfloor xy \rfloor \leq \lfloor x \rfloor \lfloor y \rfloor$

True

False

From previous attempt

7 Find the largest integer x such that $\lfloor \frac{2x+7}{5} \rfloor = 11$

24

25

26

27

From previous attempt

8 Find the smallest positive k such that $11 \mid 1000^2 + 1001^2 + 1002^2 + k$

3

5

7

9

From previous attempt

9 How many possible integer n such that $n + 3 \mid 4n^2 + 7n - 5$

4

5

10

8

From previous attempt

10 Find the greatest common divisor of $n! + 1$ and $(n + 1)! + 1$

1

$n-1$

$n!-1$

$n!+1$

From previous attempt

11 Let $p_1 p_2 \dots p_k = 1 + q_1 q_2 \dots q_{100}$, where $q^i = 2^i - 1$ and $i = 1, 2, 3, \dots$ where p_j is prime number and $p_1 \leq p_2 \leq \dots \leq p_k$.

Find p_1 .

2

3

5

7

From previous attempt

12 Find the largest positive integer d such that $d \mid n^2 + 1$ and $d \mid (n + 1)^2 + 1$ for some integer n .

1

5

7

From previous attempt

11

13 Let $[a_1, a_2, a_3, \dots]$ is simple continued fraction of $\frac{1237}{125}$. Find $a_1 + a_2 + a_3 + \dots$

14

17

20

24

From previous attempt

14 Find the smallest integer k such that $2^{2023} + 5^{2023} + 6^{2023} + 6^{2023} \equiv k \pmod{7}$

3

4

5

6

From previous attempt

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