

4期生数学サブゼミテスト②

About 20 minutes

NOTICE

- 1 All the numbers in this test are real number, if there is no notice.
- 2 Hurry up as fast as possible.
- 3 If you have any questions, raise your hand quietly and let officer know.
- 4 You can use pencil and ruler.
- 5 You must answer on “answer sheet” differentiated from “question sheet”. If you answer on “question sheet”, you will get no score with the answers.
- 6 Write your name at the top space on the answer sheet.
- 7 You can also get some scores from the process of answering.
In other word, you must write the process.

Answer in Japanese or English.

1. Define function with “independent variable” and “dependent variable”.
2. What value are these?

$$(1) \lim_{x \rightarrow 0} \frac{1}{x} \quad (2) \lim_{x \rightarrow -\infty} \frac{1}{x}$$

3. Define $\triangle x$ and dx (x is variable | $x \in R$)
4. Explain left-hand limit and right-hand limit.
5. Fill these boxes. (\square is not always 1 word.)

$$(1) \frac{d}{dx} e^x = \square \quad (2) \frac{d}{dt} (tx^2 + 2t^2x) = \square \quad (3) \log_e a = \log \square = \square$$

$$(4) \ln e = \square$$

6. $w = \alpha PAH^{1-\alpha} L^{\alpha-1}$ (All variable and parameter is real).

Change it into linear function with natural log.

7. What is this sign: “ \Leftrightarrow ”? Define it.
8. What is the inverse function of $y = \ln x$?

Good Luck!!