

問題 2 次の文章を読み、問 1 から問 3 に答えなさい。

Although experts in some countries have long recognized the damaging psychological consequences of a traumatic event, it has taken those in Japan much longer to do likewise. The turning point came shortly before 6:00 on Jan 17, 1995, when the city of Kobe was rocked to its foundations by a powerful earthquake, which killed more than 6000 people and left tens of thousands homeless.

Many survivors, forced to live for months, and in some cases years, in prefabricated shelters, showed classic PTSD\* symptoms, such as depression, anxiety, and alcohol abuse. Suicides were common.

Two months after the Kobe disaster, Japan's ability to cope with large-scale psychological trauma was tested again when members of the Aum Supreme Truth doomsday cult released sarin gas on the Tokyo subway, killing 12 people and consigning others to years of physical and mental side effects.

Japan's progress in recognising and treating PTSD won praise at a recent symposium organized by the WHO centre in Kobe.

"Now whenever we have a disaster, people naturally assume there will be some mental health-care provision", said Yoshiharu Kim of the National Institute of Mental Health in Tokyo. "That is the main difference between now and before." In addition, membership of the Japanese Society for Traumatic Stress has risen from 250 to 1000 in the past 2 years.

The symposium marked the opening last month of the first institute in Japan devoted solely to the study of PTSD. The Hyogo Institute for Traumatic Stress in Kobe will also train specialists, share the results of its research, and offer on-site counselling.

Japan must now broaden its research and adopt a multidisciplinary approach to the treatment of PTSD, said Terence Keane, director of the National Centre for PTSD. "Japan needs to move far beyond the study of disasters and just counting how many people are struggling after a traumatic event", he said. "We need to move into the study of the neurobiology of trauma exposure and PTSD, and the development of treatments."

(*The Lancet* 2004 から引用、一部改変)

\* PTSD : post-traumatic stress disorder

- 問 1 In **Japanese**, state what turning point in Japan's medical care the article mentions.
- 問 2 In **Japanese**, state what type of medical care should be given to people who are struggling psychologically from a traumatic event.
- 問 3 In **Japanese**, summarize this article in about 120 letters.

# 数 学

## 問題 1

$2004^{2005}$  と  $2005^{2004}$  ではどちらが大きいか、その根拠も示して答えなさい。

## 問題 2

自然対数の底  $e$  は  $e = \lim_{x \rightarrow 0} (1+x)^{\frac{1}{x}}$  と定義され、 $e$  を底とする  $x$  の対数は  $\log x$  と表す。

次の問 1 から問 3 に答えなさい。

問 1  $\lim_{x \rightarrow 0} \frac{\log(1+x)}{x} = 1$  を証明しなさい。

問 2  $\lim_{x \rightarrow 0} \frac{e^x - 1}{x} = 1$  を証明しなさい。

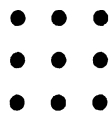
問 3 問 2 の結果を用いて、 $y = e^x$  の導関数を求めなさい。

## 問題 3

等間隔に縦、横に並んだ点の中から 4 点を頂点として選び正方形をつくる。

次の問 1 と問 2 に答えなさい。

問 1 下図のように点が 3 行、3 列の合計 9 個ある場合、4 点の選び方は何通りあるか。考え方も示して答えなさい。



問 2 点が、10 行、10 列の合計 100 個ある場合、4 点の選び方は何通りあるか。考え方も示して答えなさい。