

B-6 題

$$f(x) = ax^2 + bx + c$$

$$1 \leq 2013^2 a + 2013b + c \leq 5$$

$$3 \leq 2014^2 a + 2014b + c \leq 13$$

$$2 \leq 2015^2 a + 2015b + c \leq 8$$

$$f(2017) = 2017^2 a + 2017b + c$$

$$p(2013^2 a + 2013b + c) + q(2014^2 a + 2014b + c) + r(2015^2 a + 2015b + c) = 2017^2 a + 2017b + c$$

$$\begin{cases} 2013^2 p + 2014^2 q + 2015^2 r = 2017^2 & \dots(1) \\ 2013p + 2014q + 2015r = 2017 & \dots(2) \\ p + q + r = 1 & \dots(3) \end{cases}$$

$$(1) - (2) \times 2013$$

$$2014q + 4030r = 2017 \times 4 \quad \dots(4)$$

$$(2) - (3) \times 2013$$

$$q + 2r = 4 \quad \dots(5)$$

$$(4) - (5) \times 2014$$

$$r = 6, q = -8, p = 3$$

$$f(2017) \leq 3 \times 5 + (-8) \times 3 + 6 \times 8 = 39$$