

Найдите наименьшее значение функции $e^{2x} - 6e^x + 3$ на отрезке $[1; 2]$.

$$y = e^{2x} - 6e^x + 3$$

$$y' = 2e^{2x} - 6e^x$$

$$y(0) = 1 - 6 + 3 = -2$$

$$2e^{2x} - 6e^x = 0$$

$$e^x(2e^x - 6) = 0$$

$$e^x = 0 \text{ -- } \emptyset$$

$$2e^x - 6 = 0$$

$$2e^x = 6$$

$$e^x = 3$$

$$x = \log_e(3) = \ln 3$$

$$e^{2x} - 6e^x + 3 = 9 - 18 + 3 = -6$$

$$2^x = 8$$

$$x = 3$$

$$2^x = 16$$

$$x = 4$$

$$2^x = 10$$

$$x = \log_2(10)$$

$$y(1) = 2e^2 - 6e^1 + 3 \sim 3$$

$$y(2) = 2e^{(2 \cdot 2)} - 6e^2 + 3 > 0$$

$$y(\ln 3) = 2e^{(2 \ln 3)} - 6e^{\ln(3)} + 3 = 3^2 - 6 \cdot 3 + 3 = -6$$

Ответ -6

