

Задача № F

$$\frac{1}{2} \leq P(E(\xi) - 2 \leq \xi \leq 2E(\xi) + 1) = 1 - P(\xi > 2E(\xi) + 1) - P(\xi < E(\xi) - 2)$$

Заметим, что  $E(\xi') = \int_0^{\infty} x^2 dF(x) \geq \int_0^1 x dF(x) + \int_0^1 x^2 dF(x) =$   
 $= E(\xi) + \int_0^1 (x^2 - x) dF(x) \geq E(\xi) + \frac{1}{4} \int_0^1 dF(x) = E(\xi) + \frac{1}{4} P(\xi < 1)$

$$2 \geq D[\xi] = E(\xi') - (E(\xi))^2 \geq E(\xi) - (E(\xi))^2 + \frac{1}{4} P(\xi < 1)$$