

Math 61, Lec 1  
Winter 2016  
Quiz 3  
Week 5

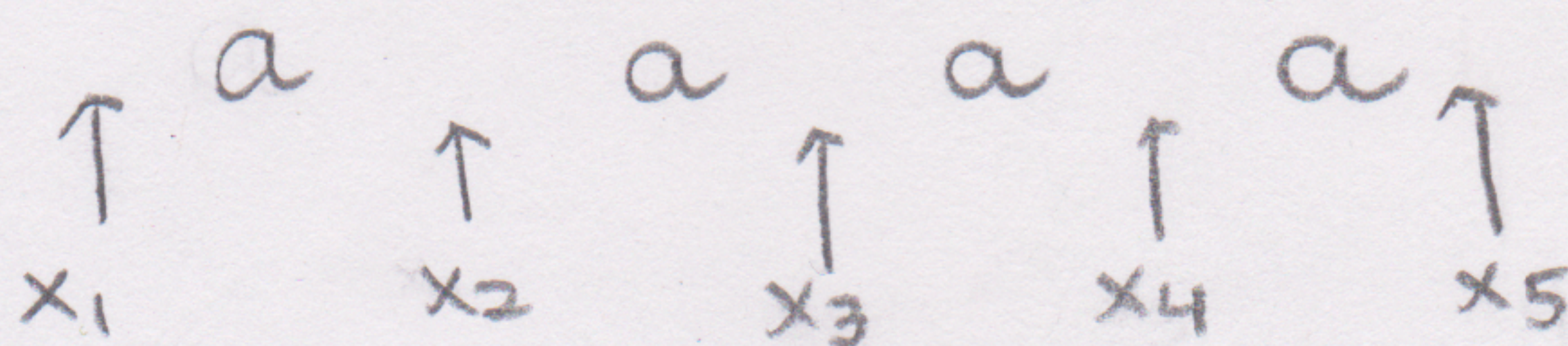
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Discussion Section: D

Consider an alphabet  $X = \{a, b\}$ . How many strings in  $X^*$  of length 25 have exactly 4 occurrences of the letter  $a$  and have the property that there are at least 4  $b$ 's between any pair of  $a$ 's?

$$C(k+t-1, t-1) \text{ or } C(k+t-1, k)$$



$x_i = \#$  of  $b$ 's  
in this position

$$x_1 \geq 0, x_2 \geq 4, x_3 \geq 4, x_4 \geq 4, x_5 \geq 0$$

$$x_1 + x_2 + x_3 + x_4 + x_5 = 21 - 12 = 9$$

$$C(9+5-1, 5-1) = C(13, 4) \text{ or } C(13, 9)$$

$\frac{2}{2}$