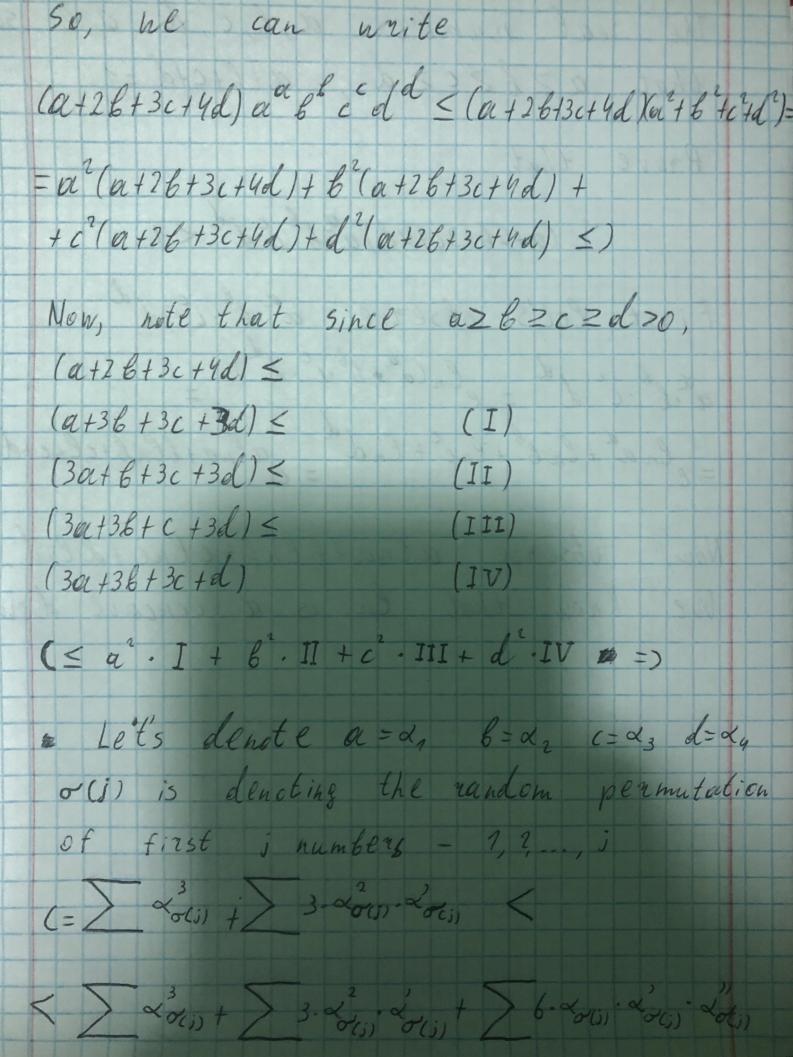
The real numbers a, b, c, d are such athtc+d=1 that azbzczdzo, Prove that
(a+26+30+4d) on 6 c dd <1 Let's observe a b c dd.

a b c dd = e ln(a b c dd) = = elnad + enbb + enct + endd alna+benb+cenc +dend Non, observe alna + blub + cluc + d lud. We know that ln is a concare down function and athtotal=1, so we can use Jensen's inequality and write alna+blnb+clnc+dlnd < ln(a.a+b.b+c.c+d.d)= = Cn(\a2 + 6" + c" + d") This implies that elhatblabtelactdend ela(a²+6²+c²+d²) = a + 6 + d + c 2



Where & ous # xous # dous # dous Then notice that  $=(01+6+(1+d)^3=1$ Proven.