**1. A particle is distributed along the positive x axis with a probability density**

**P(x) = C x2 exp(-(x/a)2). Determine it’s average coordinate <x>, and the fluctuation <Δx2> ; where <Δx>= x-<x>**

**2. The coordinate of a particle is distributed along the WHOLE x-axis with a probability density**

**P(x) = C /(x2 +a2)3/2.**

**Determine C, <x>, and the fluctuation <Δx2>**