Contamination particle size in micrometers can be modeled by the probability density function

\[ f(x) = \begin{cases} 
\frac{2}{x^3} & x > 1 \\
0 & x \leq 1 
\end{cases} \]

A. What is the cumulative distribution function?

\[ F(x) = \begin{cases} 
0, x < 1 \\
\int_1^x \frac{2}{t^3} dt = 1 - \frac{1}{x^2}, x > 1
\end{cases} \]

B. What is the mean of random variable X?

\[ EX = \int_1^\infty \frac{2}{t^2} dt = \lim_{A \to \infty} \left[ -\frac{2}{t} \right]_1^A = 2 \]

C. What is the probability that the size of a random particle will be less than 5 micrometers?

\[ F(5) = 1 - \frac{1}{5^2} = \frac{24}{25} \]