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1. Discuss the characteristics of a probability density function.
2. Show that if any function when defined between two points, $a$ and $b$, can be used to create a density function between those two points.

## Evaluate the given definite intergral using the fundamental theorem of calculus

12. $\int^{0}{ }_{-1}\left(-3 x^{5}-3 x^{2}+2 x+5\right) d x$

## Integration

28. $\quad \int^{e 2} \frac{1}{x \ln x} d x$

Sketch the given region $R$ and then find the area
10. R is the region bounded by the curve $\mathrm{y}=\frac{1}{x^{2}}$ and the lines $\mathrm{y}=\mathrm{x}$ and $\mathrm{y}=\frac{x}{8}$
14. $\quad R$ is the triangle bounded by the line $y=4-3 x$ and the coordinate axes.

