Answer the following problems and simplify your answers.

ci f{v ezsgB *f*-Y--zCzPC HbYb..S'L S'zCLq-Ysi Show all work!

$$(\mathrm{f\text{-}g})\ \int x^3 \ln x \, dx \qquad (\mathrm{f4g})\ \int_0^{\frac{\pi}{2}} \frac{x^2}{}$$