

73. An actuary models the lifetime of a device using the random variable $Y = 10X^{0.8}$, where X is an exponential random variable with mean 1 year.

Determine the probability density function $f(y)$, for $y > 0$, of the random variable Y .

- (A) $10y^{0.8}e^{-8y^{-0.2}}$
- (B) $8y^{-0.2}e^{-10y^{0.8}}$
- (C) $8y^{-0.2}e^{-(0.1y)^{1.25}}$
- (D) $(0.1y)^{1.25}e^{-0.125(0.1y)^{0.25}}$
- (E) $0.125(0.1y)^{0.25}e^{-(0.1y)^{1.25}}$