34. Solution: C

We know the density has the form $C(10+x)^{-2}$ for $0 < x < 40$ (equals zero otherwise).

First, determine the proportionality constant C from the condition $\int_0^{40} f(x)dx = 1$:

$$1 = \int_0^{40} C(10+x)^{-2}\,dx = -C(10+x)^{-1}\Big|_0^{40} = \frac{C}{10} - \frac{C}{50} = \frac{2}{25}C$$

so $C = 25/2$, or 12.5. Then, calculate the probability over the interval (0, 6):

$$12.5\int_0^{6}(10+x)^{-2}\,dx = -(10+x)^{-1}\Big|_0^{6} = \left(\frac{1}{10} - \frac{1}{16}\right)(12.5) = 0.47\ .$$