

# Probability Density Functions: Warm-Ups

(1) Eddie claims that some function  $y = p(t)$  is a ***probability density function (pdf)***. State the two characteristics that must be true in order for Eddie's claim to hold.

(2) Ralphie was given the **pdf**  $w(t) = \frac{1}{5} e^{-\frac{t}{5}}$  to represent the time, in minutes, required for him to wait in line at the drive-through car wash.

(a) Determine the probability Ralphie would wait no more than 2 minutes at this location. Provide evidence.

(b) Determine the shortest time, to the nearest minute and second, Ralphie would have to wait in line such that his probability of waiting that long is at least 90%. Show evidence.