

## Test Yourself! Section 2.1,2.7 Rates of Change

Name:

### The Logistic Equation for Zombie Populations

The release of Taylor Swift's new album in France has caused an increase of a zombie population in Paris. The population  $P$  (in thousands) at time  $t$  (in days) is approximately described by the model

$$P(t) = \frac{10}{2 + 7e^{-t}}, \quad t \geq 0$$

1. What is the initial population?
2. How fast is the population changing after 3 days of the album's release? Is the population increasing or decreasing?
3. What happens to the population as  $t$  goes to infinity? Is there a zombie apocalypse, does the population stabilize, or do they go extinct at some point?