1. (3 points) Suppose that $A$ represents the number of grams of a radioactive substance at time $t$ seconds. Given that $\frac{dA}{dt} = -0.2A$, how long does it take 20 grams of this substance to be reduced to 4 grams?
2. (4 points) The height of a remote-controlled drone in feet above ground for $t \geq 0$ seconds is given by the following function.

$$h(t) = \frac{t^{10}}{3e^{2t}}$$

What is the maximum height obtained by the drone?
3. (3 points) A street light is mounted at the top of a 630 cm pole. As a woman walks away from the pole, the tip of her shadow is moving 40\% faster than she is moving. What is the woman’s height?