Basic Derivative Rules
2.2A – Power Rule Applications

Meat

#1) The temperature of a steak is $f(x) = x^2 - 2x + 25$ degrees after *x* minutes on the grill (for $0 \leq x \leq 12$).

a. Find the instantaneous rate of change in the temperature with respect to time
b. Find $f'(2)$ and interpret your answer.
c. Find the instantaneous rate of change of the temperature after 5 minutes. Interpret answer.

Pokémon

#2) In a Nintendo experiment, a Pocket Monster trainer can memorize Pokémon, $P(x) = 2x^2 - x$ in *x* seconds (for the first 10 seconds).

a. Find *P'(x)*
b. Find P'(4) and interpret it as an instantaneous rate of change using proper units.

Basic Derivative Rules
2.2A – Power Rule Applications

Ewok Village

#3) The function $E(x) = -2x^2 + 30x + 250$ is the population of Ewoks *x* weeks after a Stormtrooper invasion (for the first 20 weeks after the invasion.)

a. Find the instantaneous rate of change of the Ewok population with respect to time in weeks.
b. Find the instantaneous rate of change of the population after 2 weeks. Interpret answer.
c. Find and interpret the meaning of *E'(10).*

The Juice

#4) The Ginzu Knife Company finds that the number of Knives that it sells on day x of an advertising campaign staring OJ Simpson is $K(x) = -x^2 + 15x$ for the first 12 days of advertising.

a. Find *K'(x)*
b. Find the instantaneous rate of change on day 4. Interpret your answer.
c. Find *K'(10)* and interpret your answer.