

Name _____

Date _____

Water Evaporation Model

A chef is cooking soup in a pot. If the chef keeps the soup gently boiling and doesn't cover the pot, water in the soup will evaporate. As water evaporates away, the soup will get thicker and tastier. Let's use a function equation to model the evaporation process: $D = 12 - 0.1t$. Variable D is the depth of the soup in the pot, in units of cm, and variable t is the amount of time the soup has been boiling, in units of min.



- (1) Graph the function. (Use technology or graph paper.)
- (2a) What is the value of the function for $t = 0$? _____
- (2b) What does your value in (2a) refer to in the situation?
- (2c) How is the situation at $t = 0$ represented on the graph?
- (3) What is the value of the slope of the graph, and what is the meaning of that value in the situation?
- (4) The soup is ready to eat when its depth is $\frac{2}{3}$ of the initial depth. At what time is the soup ready to eat?
- (5) Is the model useful for knowing what the depth of the soup would be at time $t = 150$ min? Why or why not?