4. [13 points] Algernon Brayik is making scones. He knows that the height of a scone is a function of how much baking soda it contains. Let $h(B)$ be the height in millimeters of a scone that contains B grams of baking soda. Assume that the function h is increasing and invertible, and that h and h^{-1} are both differentiable.

a. [2 points] Algie looks in his baking soda container and finds that there are exactly 46 grams of baking soda remaining. Suppose he uses all of this baking soda to make 8 scones, and that the baking soda is equally distributed among all 8 of the scones. Write a mathematical expression involving h or h^{-1} for the height (in millimeters) of each resulting scone.

Answer: $h\left(\frac{46}{8}\right)$

b. [5 points] Below is the first part of a sentence that will give a practical interpretation of the equation $h'(6) = 15$ in the context of this problem. Complete the sentence so that the practical interpretation can be understood by someone who knows no calculus. Be sure to include units in your answer.

If Algie decreases the amount of baking soda per scone from 6 grams to 5.8 grams, then...

Solution: If Algie decreases the amount of baking soda per scone from 6 grams to 5.8 grams, then the height of each scone will decrease by approximately 3 millimeters.

c. [3 points] Algie makes a batch of scones, with each scone containing k grams of baking soda (for some constant k). When the scones come out of the oven, he decides they are each 10 millimeters shorter than he would like. Write a mathematical expression involving k, h, and h^{-1} for the number of grams of baking soda per scone he should use to get scones of the desired height.

Answer: $h^{-1}(h(k) + 10)$

d. [3 points] Algie does some calculations and determines that $\dfrac{60}{h^{-1}(30)} = 40$.

Based on this information, which of the following statements must be true?
Circle all of the statements that must be true or circle NONE OF THESE.

A. If Algie makes 40 scones, each with 30 grams of baking soda, then the scones will rise to a height of 60 millimeters.

B. If Algie wants to make 40 scones, then he must use 60 grams of baking soda.

C. If Algie wants to make scones of height 30 millimeters and he has 60 grams of baking soda, then the maximum number of scones he can make is 40.

D. A scone containing 1.5 grams of baking soda rises to a height of 30 millimeters.

E. A scone containing 30 grams of baking soda rises to a height of 1.5 millimeters.

F. NONE OF THESE