Allen wants to add to his existing collection of 300 bottles. Starting today, he will collect 25 bottles each week.

a. What will be the total number of bottles in Allen’s collection after 4 weeks? Show or explain how you got your answer.

b. Write an expression to represent the total number of bottles in Allen’s collection after \( w \) weeks.

c. After how many weeks will Allen have a total of exactly 1,000 bottles in his collection? Show or explain how you got your answer.

Allen’s goal is to have between 1,500 and 1,600 bottles in his collection.

d. Write and solve a compound inequality to determine the number of weeks it will take Allen to reach his goal. Show your work.