

2. [11 points] Gretchen’s experiments have quickly depleted Chuck’s egg supply, and he has to buy more eggs from the wholesaler. Chuck has \$1050 to spend, and the wholesaler informs him that the price of mealworm eggs and cricket eggs are now \$6.50 and \$8 per pound, respectively.
- a. [4 points] Let  $f$  be the function that gives the amount  $M$  of mealworm eggs in pounds that Chuck can afford if he buys  $C$  pounds of cricket eggs (in other words, we have  $M = f(C)$ ). Write a formula for the function  $f$ .

$$f(C) = \underline{\hspace{10cm}}$$

After some bargaining, the wholesaler gives Chuck a **special offer**. If he buys \$400 worth of cricket eggs at \$8 per pound, then he will be charged only \$7.50 for each subsequent pound of cricket eggs beyond the first \$400.

- b. [2 points] If Chuck spends \$400 on cricket eggs, what amount of mealworm eggs can he buy? Circle your final answer.
- c. [5 points] Let  $g$  be the new function that gives the amount  $M$  of mealworm eggs in pounds that Chuck can afford if he buys  $C$  pounds of cricket eggs with the **special offer**. Write a piecewise-defined formula for the function  $g$ .

$$g(C) = \left\{ \begin{array}{l} \underline{\hspace{10cm}} \text{ for } \underline{\hspace{10cm}} \\ \underline{\hspace{10cm}} \text{ for } \underline{\hspace{10cm}} \end{array} \right.$$