

5. [13 points] After seeing the good effects of Gretchken's running routine, Chuck has decided to start running as well. Suppose $C(d)$ is the time (in seconds) it takes Chuck to run d meters, and suppose $G(d)$ is the time (in seconds) it takes for Gretchken to run d meters. Suppose C and G both have inverse functions.

- a. [3 points] Give a practical interpretation of the expression $G^{-1}(600) = 800$.

Solution:

Gretchken takes 600 seconds to run 800 meters.

- b. [4 points] Give a practical interpretation of the expression $C^{-1}(G(300)) = 200$.

Solution:

It takes Chuck the same amount of time to run 200 meters as it takes Gretchken to run 300 meters.

- c. [3 points] Give an expression using function notation for Chuck's average speed in meters per second during his first 720 seconds of running. Circle your final answer.

Solution:

$$\frac{C^{-1}(720)}{720}$$

- d. [3 points] If $D(h)$ is the distance in meters Chuck needs to run to burn h calories, give a practical interpretation of the quantity $C(D(100))$.

Solution:

$C(D(100))$ is the amount of time in seconds it takes Chuck to burn 100 calories while running.