Problem statement The numbers $R_1$, $R_2$, $R_3$, and $R$ satisfy the following equation:

$$\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} = \frac{1}{R}.$$  

(Physics and engineering students may recognize this as a formula for the total resistance, $R$, of a circuit composed of three resistances $R_1$, $R_2$, and $R_3$ connected in parallel.)

a) If $R_1 = 1$ and $R_2 = 2$ and $R_3 = 3$, compute $R$ exactly.

b) If both $R_1$ and $R_3$ are held constant, and $R_2$ is increased by .05, what is the approximate change in $R$?

c) If both $R_1$ and $R_2$ are held constant, and $R_3$ is increased by .05, what is the approximate change in $R$?