The Dubois & Dubois formula approximating body surface area (BSA) has been widely used since it was first published in 1916. The formula is

$$\text{BSA} = \frac{\text{weight}^{0.425} \cdot \text{height}^{0.725}}{139.2}$$

where BSA, body surface area, is measured in square meters, weight is measured in kilograms, and height is measured in centimeters. BSA is very important in many medical and other "human factors" applications (cooling, for example). Appropriate units with explanations should accompany all of your answers in this problem.

1. What is the BSA for a person whose weight is 83 kilograms and whose height is 186.7 centimeters?

2. If the person described in a) gained 1 kilogram, what would be the rate of change of that person's BSA?

3. If the person described in a) magically grew 1 centimeter taller, what would be the rate of change of that person's BSA?

4. Compute the change in the BSA for each of the situations in b) and c). Which change is greater?