2. [10 points] The table below gives data about the participation of athletes representing the United States during the Winter Olympic Games since 1994. For each year Y in which the Winter Olympics were held, C is the total number of US competitors, S is the total number of sports in which US athletes competed, E is the total number of different events, and M is the total number of medals won by US competitors at the Olympic games that year.

Y	1994	1998	2002	2006	2010
C	147	186	202	211	216
S	12	14	15	15	15
E	61	68	78	84	86
M	13	13	34	25	37

a. [2 points] In one complete sentence, explain why C is a function of E for the years represented in the table.

Solution: C is a function of E because each value of E (the input) corresponds to one and only one value of C (the output).

b. [3 points] Since C is a function of E, we can write $C = g(E)$. Evaluate the average rate of change of g for E between 68 and 84. *Include units.*

Solution: The average rate of change is $\frac{\Delta C}{\Delta E} = \frac{g(84) - g(68)}{84 - 68} = \frac{211 - 186}{84 - 68} = \frac{25}{16}$ competitors per event.

Answer: $\boxed{\frac{25}{16} \text{ competitors per event}}$

c. [5 points] Based on the data provided in the table, determine which, if any, of the following statements could be true. (There may be none, one, or more than one.)
Circle all of the statements that could be true. *No explanations are required.*

- ∘ C is a decreasing function of E.
- ∘ $\boxed{E \text{ is a function of } C.}$
- ∘ $\boxed{C \text{ is an increasing function of } E.}$
- ∘ E is a function of S.
- ∘ C is concave up as a function of Y.
- ∘ C is a function of M.
- ∘ $\boxed{C \text{ is concave down as a function of } Y.}$
- ∘ $\boxed{Y \text{ is a function of } C.}$