

## Stats /

# Rejecting unreasonable claims based on average statistics

Problem Explanation

Show Another

### Rejecting unreasonable claims based on average statistics

#### QUESTION

An investment company advertised that last year its clients, on average, made a profit of 7%. Assuming that average refers to the mean, which of the following claims must be true based on this information?

Note: More than one statement could be true. If none of the statements is true, mark the appropriate box.

<input type="radio"/>	Last year at least one of their clients made a profit of more than 2%.
<input type="radio"/>	Two years ago at least one of their clients made a profit of at least 7%.
<input type="radio"/>	Last year fewer than half of their clients made a profit of 7% or less.
<input type="radio"/>	Last year all of their clients made a profit of at least 7%.
<input type="radio"/>	Last year some of their clients made a profit of exactly 7%.
<input type="radio"/>	None of the above statements is true.

Somebody had to make over 2 to get an average of 7  
 We don't know anything about 2 years ago  
 We don't know any specifics  
 Not all numbers above 7  
 We don't know anybody made exactly 7

### Rejecting unreasonable claims based on average statistics

A weight-loss clinic advertised that last month its patients, on average, lost 6 lb. Assuming that average refers to the mean, which of the following claims must be true based on this information?

Note: More than one statement could be true. If none of the statements is true, mark the appropriate box.

<input type="radio"/>	This month some of their patients will lose at least 6 lb.
<input type="radio"/>	Last month at least one of their patients lost exactly 6 lb.
<input type="radio"/>	Last month, the number of their clients who lost 6 lb or less was equal to the number of their clients who lost 6 lb or more.
<input type="radio"/>	Last month all of their patients lost more than 4 lb.
<input checked="" type="radio"/>	Last month at least one of their patients lost at least 6 lb.
<input type="radio"/>	None of the above statements are true.

2. Proves False  
 We do not know (median)  
 could have someone who lost 1 lb and then 11 lb (averages 6)

2 scenarios:

1. Every patient lost 6 lb
2. Some less than 6 and some greater than 6 and it averages out to be 6

Yes b/c ① ! ② could both happen