Prompt:
If 75% of the guests at a certain banquet order dessert, what percent of the guests order coffee?

I'm going to use N for the total number of guests.

Start Matrix:

	coffee	**no coffee**	**TOTALS**
dessert			0.75N
no dessert			0.25N
TOTALS	C?		N

Statement #1:
60% of the guests who ordered dessert also ordered coffee

Matrix:

	coffee	**no coffee**	**TOTALS**
dessert	0.6(0.75N) = 0.45N	0.4(0.75N) = 0.3 N	0.75N
no dessert			0.25N
TOTALS	C?		N

This statement allows us to figure out the percents in the top row only. We have no information about how many of the non-dessert people had coffee. By itself, Statement #1 is **insufficient**.

Statement #2

90% of the guests who ordered coffee also ordered dessert. Call the total number who ordered coffee C (the value of which is what the prompt is asking).

	coffee	**no coffee**	**TOTALS**
dessert	0.9C		0.75N
no dessert	0.1C		0.25N
TOTALS	C	N – C	N

Here, we can put symbolic entries in the first column. The trouble is, we have no information about the non-coffee folks did about dessert, so with this statement alone, we have no way to solve for C. Statement #2, by itself, is **insufficient**.

Combined Statements #1 & #2

Put the information from both statements into one matrix:

	coffee	**no coffee**	**TOTALS**
dessert	0.9C = 0.45N	0.3N	0.75N
no dessert	0.1C		0.25N
TOTALS	C	N – C	N

In the dessert-coffee box in the upper left, we get an equation. From Statement #1, we get that the number of people who said yes to both was 45% of the total number of guests. From Statement #2, we see that the folks who said yes to both were 90% of the coffee drinkers.

Solving, we get $0.9C = 0.45N \rightarrow 2C = N \rightarrow C = 0.5N$. Therefore, 50% of the guests had coffee. Combined, statements #1 & #2 together are **sufficient**.

Answer = **C**