Probability of passing through interview stages

**Question:**Given the information below, if you had a good first interview, what is the probability you will receive a second interview?

* 50% of all people who received a first interview received a second interview
* 95% of people that received a second interview had a good first interview
* 75% of people that did not receive a second interview had a good first interview

**Solution:**

Lets first define the possible events from what's given in the question:

* pass = invited for a second interview
* fail = not invited for a second interview
* good = had a good first interview
* bad = did not have a good first interview

Next, let's restate the given using our event nomenclature defined above, and define what we need to solve for.

p(pass) = 0.5

p(good∣pass) = 0.95

p(good∣fail) = 0.75

p(pass∣good) = ?

Using Bayes' rule, we can derive the pieces of information we need to solve for ***p(pass | good)***.

p(pass∣good) = ( p(good∣pass) \* p(pass) ) / p(good)

Give the equation above and the information from the question, we need to solve for ***p(good)*** in order to solve for ***p(pass | good)***.

p(good) = p(good∣pass) \* p(pass) + p(good∣fail)\*p(fail)

= 0.5 (0.95 + 0.75)

= 0.85

Now that we know ***p(good) = 0.85***lets solve for ***p(pass | good)***.

p(pass∣good) = ( p(good∣pass) \* p(pass) ) / p(good)

= ( 0.95 \* 0.5 ) / 0.85

= 0.56