Consider the events $A$ and $not A$.

a. Are $A$ and $not A$ mutually exclusive? Explain. Slide 5
b. Are $A$ and $not A$ independent? Explain. Slide 7

Hint: Imagine the event $A$ is that a randomly selected person is male.
Suppose that a student is asked to choose a number from 1 to 10. Define *chooses 5* to be the event that the student chooses the number 5, and *chooses even* to be the event that the student chooses an even number.

a. What is \( P(\text{chooses 5} \cap \text{chooses even}) \)?

b. What is \( P(\text{chooses 5} \cup \text{chooses even}) \)?

c. Are events *chooses 5* and *chooses even* independent? Explain.

d. Are events *chooses 5* and *chooses even* mutually exclusive? Explain.

See slide 4 for explanations of the symbols.
What is the probability that a woman who has two children has either two girls or two boys? Assume that the probability of a boy is .512 and the probability of a girl is .488.

- Start by calculating the probability of having two girls (refer to e.g. slide 11)
- Now do the same for two boys
- Now use the general addition rule to get the probability of having two boys or two girls (slide 5).
Suppose a coin is flipped 3 times. What is the probability of getting two tails and one head? Hint: see the example on slide 4, use the same method here.