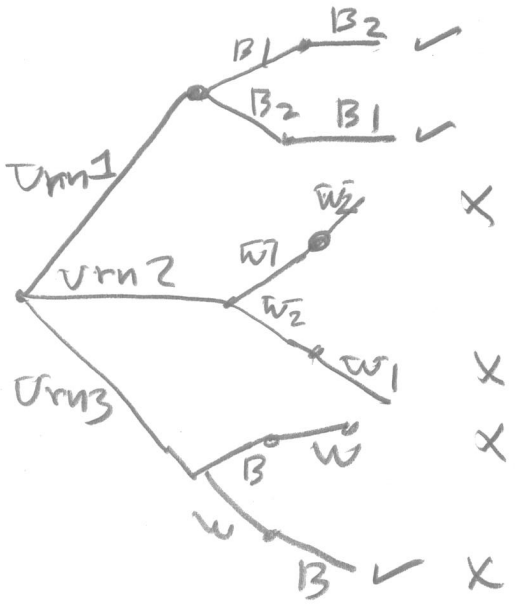
Mathematics 174

Quiz # 23 Name: Key

You must show your work to get full credit.

We have three urns. One contains two black balls, call then B_1 and B_2, the second contains two white balls, call then W_1 and W_2, the third contains one black ball and one white ball. A person chooses one of the three urns, then chooses a first ball from it, and then chooses a second ball from the same urn.

1. Draw the tree of all possible out ones of this experiment.



Total number of outcomes is 8

2. If all outcomes are equally likely what is the probability that the second ball drawn is black?

Favorable outcomes marked with ✓ There are 3 of them

$P(\text{Second is black}) = \frac{3}{8}$

3. If all outcomes are equally likely what is the probability that at least one ball is white?

Favorable outcomes marked with X There are 4 of them.

$P(\text{At least one is white}) = \frac{4}{8} = \frac{1}{2}$