

STUDY LINK
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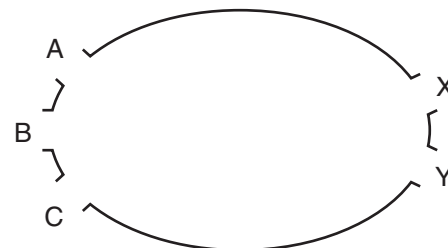
Probability Investigations



Multiplication Counting Principle

Suppose you can make a first choice in m ways and a second choice in n ways. Then there are $m * n$ ways to make the first choice followed by the second choice. Three or more choices can be counted in the same way, by multiplying.

1. A person can enter the stadium shown at the right through any gate and can exit through any gate. In how many different ways can a person enter and exit the stadium?



$$\frac{\quad}{\text{(ways to enter)}} * \frac{\quad}{\text{(ways to exit)}} = \frac{\quad}{\text{(total ways to enter and exit)}}$$

2. Draw a **tree diagram** to show all possible ways to enter and exit the stadium.

Entry gate: _____

Exit gate: _____

3. Do you think that all the ways to enter and exit are equally likely? _____

Explain your answer. _____

4. How many ways are there to enter and exit the same stadium if a person may not leave by the same gate through which he or she entered? _____

5. Sally takes a quiz with three true or false questions. She does not know the answer to any of the questions, so she guesses on all three.

a. On the back of this page, draw a tree diagram to show Sally's possible results.

b. What is the probability that she will get all three questions correct? _____