7.2 Quick Notes

1) Two events are <u>mutually exclusive</u> is they have no outcomes in common.

2) If A and B are events, then $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Ex) On a beach, the probability that a person is female is .55. The prob. That a person is sunburned is .60. The probability that a person is female and sunburned is .3. Find the probability that a person is female or sunburned. (do venn diagram too)

3) $P(\overline{A}) = 1 - P(A)$ Ex) roll 3 dice. Find the probability that the sum is greater than 4.

4) Probability vs Odds

	<u>Probability</u>		<u>Odds</u>
If all outcomes are equally likely, then	P(E) = $\frac{\text{"Successes"}}{\text{"Total"}}$	and	O(E) = "successes **:** failures" (successes + failures = total)

5) If $O(A)$ = **a : b**, then $O(\overline{A})$ = **b : a**

Ex) If P(E) = $\frac{3}{7}$, then find $P(\overline{E})$, $O(E)$, and $O(\overline{E})$.

Ex) If O(E) = 8 : 3, then find $O(\overline{E})$, $P(E)$, and $P(\overline{E})$.

Ex) If P(E) = .35, then find O(E).

Ex) The odds that the hare wins the race are 3 to 1. The odds that the turtle wins the race are 2 to 17. Find the probability that either the hare or the turtle wins the race. (Assume no ties)