$A \cup B$: means union, everything in sets A and B

$A \cap B$: means intersection, only items that are in both sets

FST 6-1 thru 6-3 Quiz Review In class

1) Consider the sample space when 2 fair 6-sided dice are tossed. $6 \cdot 6 = 36$ outcomes

a) Find P(the sum is 11) $= \boxed{\dfrac{2}{36} = \dfrac{1}{18}}$ b) Find P(the sum is 9 or the first die is a 3)

$\{(5,6)(6,5)\}$

9: $\{(3,6),(4,5),(5,4),(6,3)\}$

3: $\{(3,1)(3,2)(3,3)(3,4),(3,5)(3,6)\}$

$P(9) + P(3) - P(both)$

$\dfrac{4}{36} + \dfrac{6}{36} - \dfrac{1}{36} = \boxed{\dfrac{9}{36} = \dfrac{1}{4}}$

2) Let A be the event: It's snowing. Describe the complement of A.

It's **NOT** Snowing

3) Consider an experiment in which a coin is tossed 2 times.

a) Write the experiment's sample space.

HH   H   T
HT   / \   / \
TT   T   H   H   T
TH

4 outcomes

b) What is the probability of exactly 1 head showing up?

$\dfrac{2}{4} = \dfrac{1}{2}$

4) A test has 9 true-false questions and 7 multiple-choice questions each with 5 choices. What is the probability of answering all questions correctly if you randomly guess on each?

$\dfrac{1}{2^9 \cdot 5^7} = \dfrac{1}{46,000,000} = \boxed{2.5 \times 10^{-8}}$

-OR- $\left(\dfrac{1}{2}\right)^9 \cdot \left(\dfrac{1}{5}\right)^7$

5) There are 9 photos to display on a wall.

a) How may ways can the 9 photos be arranged?

$9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 = \boxed{362,880}$

b) How many ways can the photos be arranged if the family portrait must be displayed in the middle?

$8 \quad 7 \quad 6 \quad 5 \quad 1 \quad 4 \quad 3 \quad 2 \quad 1 = \boxed{40,320}$