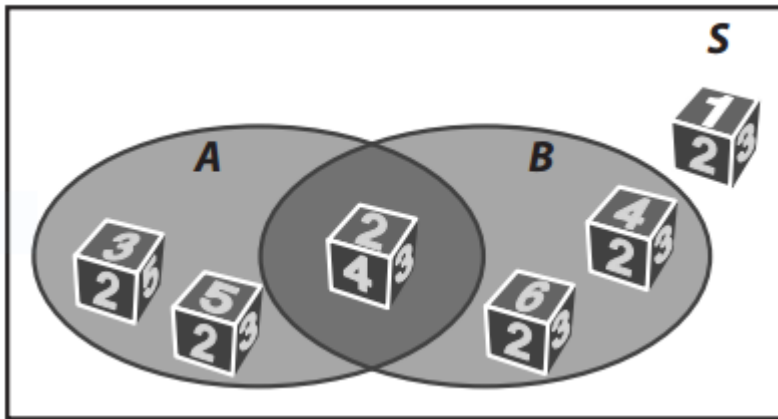Warm Up   1/13/23

You roll a die. Event A is rolling a prime number. Event B is rolling an even.

Calculate:

1) $P(A)$
2) $P(A \cup B)$
3) $P(A \cap B)$
4) $P(\sim A)$

Probabilities of an Event and Its Complement	
$P(A) + P(A^c) = 1$	The sum of the probability of an event and the probability of its complement is 1.
$P(A) = 1 - P(A^c)$	The probability of an event is 1 minus the probability of its complement.
$P(A^c) = 1 - P(A)$	The probability of the complement of an event is 1 minus the probability of the event.

Sometimes it's easier to use the complement to find a probability.

Example:

Find the probability of not choosing a red king from a deck of cards.

Find the probability of choosing a red king:

$$P(\text{red king})= \frac{2}{52} = \frac{1}{26}$$

So the probability of not choosing a red king is:

$$1 - P(\text{red king})= 1 - \frac{1}{26} = \frac{25}{26}$$