

## Conditional Probability Worksheet 2

1. Event  $A$ : You ate devils food cupcakes with sprinkles. Event  $B$ : You baked cupcakes this morning. Is it true that  $A$  and  $B$  must be related (not independent) events?
2. Event  $A$ : The sun rises in the morning. Event  $B$ : You are an inhabitant of earth. Is it true that  $A$  and  $B$  must be related (not independent) events?
3. Event  $A$ : It's snowing. Event  $B$ : It must be below 0C. Is it true that  $A$  and  $B$  must be related (not independent) events?  
  
Determine if the following events are independent.  $P(A)$  is the probability of event  $A$  occurring and  $P(B)$  is the probability of event  $B$  occurring.  $P(AB)$  is the probability of both events occurring.
4.  $P(A) = 0.60$ : you cleaned your room this morning.  $P(B) = 0.1$ : your mom is upset with you.  $P(AB) = 0.06$ .
5.  $P(A) = 0.75$ : you washed between your toes.  $P(B) = 0.15$ : you can run a 7 minute mile.  $P(AB) = 0.1125$ .
6.  $P(A) = 0.55$ : you enjoy strawberry cheesecake.  $P(B) = 0.1$ : you like strawberries.  $P(AB) = 0.055$ .
7.  $P(A) = 0.22$ : you are a vampire.  $P(B) = 0.17$ : the sun can burn your skin.  $P(AB) = 0.0374$ .
8.  $P(A) = 0.33$ : you sleep on your left side at night.  $P(B) = 0.25$ : you snore so loudly that you can wake your neighbor's cat up.  $P(AB) = 0.1$ .
9.  $P(A) = 0.55$ : you prefer Mario over Luigi.  $P(B) = 0.45$ : you prefer Luigi over Mario.  $P(AB) = 0$ .
10.  $P(A) = 0.30$ : your cat woke you up this morning.  $P(B) = 0.1$ : your cat was plotting your demise. Evil creatures.  $P(AB) = 0.03$ .