

Conditional Probability Worksheet 2 - Answers

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?
No.
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?
No.
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?
No. It can snow when it's a little above freezing.
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. $P(AB) = 0.06$.
Events A and B are independent
5. $P(A) = 0.75$: you washed between your toes. $P(B) = 0.15$: you can run a 7 minute mile. $P(AB) = 0.1125$.
Events A and B are independent.
6. $P(A) = 0.55$: you enjoy strawberry cheesecake. $P(B) = 0.1$: you like strawberries. $P(AB) = 0.055$.
Events A and B are not independent.
7. $P(A) = 0.22$: you are a vampire. $P(B) = 0.17$: the sun can burn your skin. $P(AB) = 0.0374$.
Events A and B are independent.
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. $P(AB) = 0.1$.
Events A and B are not independent.
9. $P(A) = 0.55$: you prefer Mario over Luigi. $P(B) = 0.45$: you prefer Luigi over Mario. $P(AB) = 0$.
Events A and B are not independent.
10. $P(A) = 0.30$: your cat woke you up this morning. $P(B) = 0.1$: your cat was plotting your demise. Evil creatures. $P(AB) = 0.03$.
Events A and B are independent.