

Worksheet 2

Let's Revise!

Risk Revision: Given below is a table summarizing some data of people who smoke and died because of lung disease.

	Died of other causes	Died of lung disease	
People not smoking	322	28	
People smoking	48	202	

$$\hat{p}_{B+} =$$

$$\hat{p}_{B-} =$$

$$RR =$$

$$AR =$$

$$AR\% =$$

$$NNC =$$

Revise Variance: Suppose a certain data set has a mean of 1630, and the standard deviation is 6.5. Answer the following questions:

$$\bar{x} =$$

$$s =$$

$$CV =$$

Calculate the z-score of a point $x = 1613.75$:

$$z =$$

Let's Move Ahead!

Probability: Looking at the table, determine the following probabilities.

	O	A	B	AB	
G1	310	100	175	15	
G2	195	210	200	5	
G3	255	135	150	10	

$$P(G1) =$$

$$P(A) =$$

$$P(G1 \cup O) =$$

$$P(A \cap G1) =$$

$$P(O \cup G1) =$$

$$P(G1 \cap G2) =$$

$$P(B \cap AB) =$$

$$P(AB \cup B) =$$

Conditional Probability: Looking at the table, determine the following conditional probabilities.

	O	A	B	AB	
G1	310	100	175	15	
G2	195	210	200	5	
G3	255	135	150	10	

$$P(G2) =$$

$$P(B) =$$

$$P(A | G1) =$$

$$P(G1 | A) =$$

$$P(G3 | (A \cup B)) =$$

$$P(A | (G1 \cup G2)) =$$

$$P(A | B) =$$

$$P((O \cup AB) | G3) =$$

Disease Problem: Suppose a certain disease occurs in 1% of the population. We have produced a medical test to determine if a person has a disease and the test produces a positive reading on 98% of those infected with the disease. The test also gives a positive result in healthy people 1.5% of the time. Fill the table, and answer the probability questions below:

	Has Disease	Does Not Have Disease	Total
Test Positive			
Test Negative			
Total			100,000

$$P(\text{Has Disease}) =$$

$$P(\text{Test Positive}) =$$

$$P(\text{Has Disease} | \text{Test Positive}) =$$

$$P(\text{Test Positive} | \text{Has Disease}) =$$

$$P(\text{Test Negative} | \text{Has Disease}) =$$

$$P(\text{Has Disease} | \text{Test Negative}) =$$

Independence: Remember if A & B are independent events, then $P(A|B) = P(A)$.

$$\text{And } P(A \cap B) = P(A) \cdot P(B)$$

What is the probability of getting a number greater than 4 in all the 3 dice, when you roll 3 dices at the same time?