

Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome. 6PS3.1

41. To get home from work, Curtis must get on one of the three highways that leave the city. He then has a choice of four different roads that lead to his house. In the diagram below, each letter represents a highway, and each number represents a road.

		Highway		
		A	B	C
Road	1	A 1	B 1	C 1
	2	A 2	B 2	C 2
	3	A 3	B 3	C 3
	4	A 4	B 4	C 4

If Curtis randomly chooses a route to travel home, what is the probability that he will travel Highway B and Road 4?

- A $\frac{1}{16}$ C $\frac{1}{4}$
 B $\frac{1}{12}$ D $\frac{1}{3}$

42. The table below shows all of the possible outcomes when flipping three fair coins at the same time.

First Coin	Second Coin	Third Coin
H	H	H
H	H	T
H	T	H
H	T	T
T	H	H
T	H	T
T	T	H
T	T	T

Which of the following statements must be true?

- A The probability that exactly two coins have the same outcome is $\frac{1}{2}$.
 B The probability of getting exactly one tail is higher than getting exactly two tails.
 C The probability of getting at least one head is higher than the probability of getting at least one tail.
 D The probability that all of the coins will land on heads is the same as the probability that all of the coins will land on tails.

43. Carmen wants to buy a new car. Her choices are a 2-door or a 4-door, a convertible top or a hard top, and red, white, or black. Which of the following tree diagrams represents all the possible choices for the car?

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