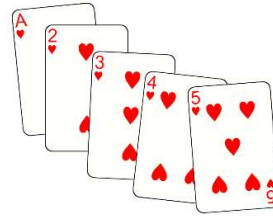
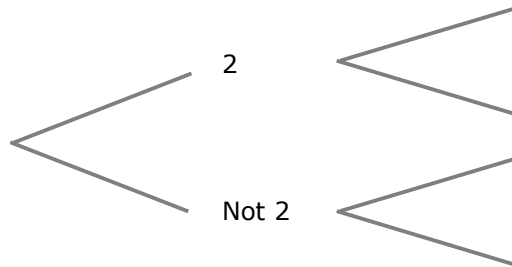


Routine Probability #5



1. What is the probability that if I pick one of the cards to the right that I get a two?
2. Taking the same cards as Question 1, but this time making two draws from the five cards, what is the probability that at least one of them will be a two?



3. A car yard has 12 new cars, 10 second-hand cars, 4 new utes and 6 second-hand utes. If a vehicle is selected at random, what is the probability it:
 - a) is new?
 - b) is a ute?
 - c) is new if it is a ute?

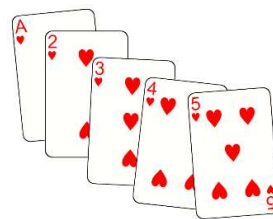
4. A class is asked if they eat breakfast:

| | Always | Sometimes | Never | Total |
|-------|--------|-----------|-------|-------|
| Boys | 9 | 3 | | 14 |
| Girls | 10 | | 1 | |
| Total | | | | 28 |

What is the probability a random student from the class:

- a) always eats breakfast?
 - b) at least eats some breakfast?
 - c) is a girl, if they never eat breakfast?
5. Billy plays his favourite video game after school on three-quarters of days.
 - a) Over a week, Monday to Friday, what is the probability he never plays it?
 - b) Over a week (M to F), what is the probability he plays it at least once?
 - c) Why are the answers in a) and b) likely to be wrong?

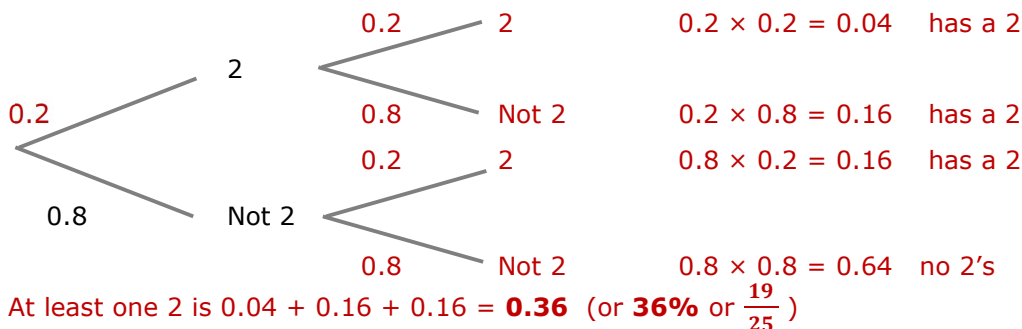
Answers : Routine Probability #5



1. What is the probability that if I pick one of the cards to the right that I get a two?

$$\frac{1}{5} \text{ or } 20\%$$

2. Taking the same cards as Question 1, but this time making two draws from the five cards, what is the probability that at least one of them will be a two?



3. A car yard has 12 new cars, 10 second-hand cars, 4 new utes and 6 second-hand utes. If a vehicle is selected at random, what is the probability it: **Total = 32**

- a) is new? $\frac{16}{32}$ or $\frac{1}{2}$ or **50%**
 b) is a ute? $\frac{10}{32}$ or $\frac{5}{16}$ or **31.25%**
 c) is new if it is a ute? There are 10 utes (because it isn't a car)
 Of the 10 utes, 4 are new. So $\frac{4}{10}$ or $\frac{2}{5}$ or **40%**

4. A class is asked if they eat breakfast:

| | Always | Sometimes | Never | Total |
|-------|--------|-----------|-------|-------|
| Boys | 9 | 3 | 2 | 14 |
| Girls | 10 | 3 | 1 | 14 |
| Total | 19 | 6 | 3 | 28 |

What is the probability a random student from the class:

- a) always eats breakfast? $\frac{19}{28}$ or **67.86%**
 b) at least eats some breakfast? $\frac{25}{28}$ or **89.29%**
 c) is a girl, if they never eat breakfast? Ignore those that eat breakfast
 Of the three who don't, one is a girl, so : $\frac{1}{3}$ or **33.33%**
5. Billy plays his favourite video game on $\frac{3}{4}$ of days. So probability he doesn't is $\frac{1}{4}$
- a) Over M to F, what is the probability he never plays it? $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} = \frac{1}{1024}$
 b) Over M to F, what is the probability he plays it at least once? Opposite of a) = $\frac{1023}{1024}$
 c) Why are the answers in a) and b) likely to be wrong?

The longer he goes without playing, the more likely he is to want to play the next day, so the probability will increase over the week without playing.