POSSIBILITIES AND PROBABILITY

45. COUNTING THE POSSIBILITIES

The fundamental counting principle: if there are ***m* ways** one event can happen and ***n* ways** a second event can happen, then there are $m \times n$ **ways** for the two events to happen. For example, with 5 shirts and 7 pairs of pants to choose from, you can put together $5 \times 7 = 35$ different outfits.

46. PROBABILITY

$$\text{Probability} = \frac{\text{Favorable outcomes}}{\text{Total possible outcomes}}$$

If you have 12 shirts in a drawer and 9 of them are white, the probability of picking a white shirt at random is $\frac{9}{12} = \frac{3}{4}$. This probability can also be expressed as .75 or 75%.