Probability and Predictions

Probability measures the likelihood that a specific event will occur. Probabilities are expressed as fractions. To find the probability of a specific outcome, use this formula:

$$\text{Probability of an even} \frac{\textit{number} \text{ of specific outcomes}}{\textit{Total} \text{ number of possible outcomes}}$$

Example

If a hat contains nine white buttons, five green buttons, and three black buttons, what is the probability of selecting a green button without looking?

$$\text{Probability} = \frac{\text{number of specific outcomes}}{\text{Total number of possible outcomes}}$$

$$\text{Probability} = \frac{\text{number of green buttons}}{\text{Total number of buttons}}$$

$$\text{Probability} = \frac{5}{9+5+3}$$

$$\text{Probability} = \frac{5}{17}$$

Therefore, the probability of selecting a green button without looking is $\frac{5}{17}$

A box of DVDs contains 13 comedies, four action movies, and 15 thrillers. If Brett selects a DVD from the box without looking, what is the probability he will pick a comedy?

a. $\frac{4}{32}$
b. $\frac{13}{32}$
c. $\frac{15}{32}$
d. $\frac{13}{15}$
e. $\frac{13}{4}$

Answer

b. $\text{Pr}obability = \frac{number \text{ of specific outcomes}}{Total \text{ number of possible outcomes}}$. Therefore, you can set up the following fraction:

$$\text{Pr}obability = \frac{number \text{ of comedy DVDs}}{Total \text{ number of DVDs}} = \frac{13}{13+4+15} = \frac{13}{32}$$

Therefore, the probability of selecting a comedy DVD is $\frac{13}{32}$