

Mathematics Grade 9

Name: _____ No. _____ M.4/_____

Probability: Probability That An Event Does Not Happen

$$P(\text{not } A) = 1 - P(A \text{ does happen})$$

1. A card is drawn at random from an ordinary pack of playing cards. What is the probability that it is not three?

Solution $P(\text{a three}) = \frac{\text{number of choices that are threes}}{\text{total number of possible choices}} = \frac{\quad}{\quad} = \frac{\quad}{\quad}$

$$P(\text{not a three}) = 1 - \frac{\quad}{\quad}$$

$$= \frac{\quad}{\quad} = \frac{\quad}{\quad}$$

Answer: —

2. One letter is chosen at random from English alphabet. What is the probability that it is not a vowel?

Solution

$$P(\text{a vowel}) = \frac{\text{number of choices that are vowels}}{\text{total number of possible choices}}$$

$$P(\text{a vowel}) = \frac{5}{26}$$

$$P(\text{not a vowel}) = 1 - \frac{5}{26}$$

$$= \frac{21}{26}$$

$$= \frac{21}{26}$$

Answer: $\frac{21}{26}$

3. A number is chosen at random from the first 20 natural numbers. What is the probability that it is not exactly divisible by 5?

Solution $P(\text{it is divisible by } 5) = \frac{\text{number of choices that are exactly divisible by } 5}{\text{total number of possible choices}}$

$$P(\text{it is divisible by } 5) = \frac{4}{20} = \frac{1}{5}$$

$$P(\text{not divisible by } 5) = 1 - \frac{1}{5}$$

$$= \frac{5}{5} - \frac{1}{5}$$

$$= \frac{4}{5}$$

Answer: $\frac{4}{5}$

4. A card is drawn at random from an ordinary pack of playing cards. Find the probability that it is not a heart.

Solution $P(\text{a heart}) = \frac{\text{number of choices that are hearts}}{\text{total number of possible choices}}$

$$P(\text{a heart}) = \frac{13}{52} = \frac{1}{4}$$

$$P(\text{not a heart}) = 1 - \frac{1}{4}$$

$$= \frac{4}{4} - \frac{1}{4}$$

$$= \frac{3}{4}$$

Answer: $\frac{3}{4}$