

Example 2

In a Science textbook, 23 out of 57 pages contain a picture. Express the probability, in the form of a fraction, a decimal, and a percent, that a randomly selected page will contain a picture.

Fraction: $\frac{23}{57}$

Decimal: 0.40

Percent: 40%

$$\frac{23}{57} = 0.40$$

$$\frac{23}{57} \times 100 = 40$$

The probability of a **certain event** is 100% (or 1). For example if today is Sunday, then the probability that tomorrow is Monday is 100% or 1.

The probability of an **impossible event** is 0. For example if today is Wednesday, then the probability that tomorrow is Friday is 0% or 0.

A **complement** refers to the quantity of amount that completes something. You can think of it as the part needed to complete the whole. For example if there is a 20% chance it will rain today, it follows that there is an 80% chance it will NOT rain. We say that 80% is the complement of 20%.

Probability	Complement
20%	80%

Example 3

Determine the complements of the following

Probability	Complement
15%	$100\% - 15\% = 85\%$
$\frac{7}{7} - \frac{4}{7} = \frac{3}{7}$	$\frac{4}{7}$
$\frac{32}{50}$	$\frac{50}{50} - \frac{32}{50} = \frac{18}{50}$
0.30	$1.00 - 0.30 = 0.70$
0.47	$1.00 - 0.47 = 0.53$
$100\% - 89\% = 11\%$	89%

$15 + 85 = 100$

$\frac{3}{7} + \frac{4}{7} = 1$