

Complementary Events

A fridge contains 14 bottles of juice, 22 bottles of water and 32 bottles of soft drink. If a drink is selected at random, what is the probability of it not being a bottle of juice?

Complete the probabilities.

$$P(\tilde{E}) = 1 - P(E)$$

$$P(\text{not juice}) = 1 - P(\text{juice})$$

$$P(\text{not juice}) = 1 - \frac{14}{68}$$

$$= \frac{27}{34}$$

$P(\tilde{E}) = 1 - P(E)$
 The probability of the event NOT occurring = 1 - The probability of the event occurring

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Description

In this activity, students answer questions to do with complementary events.

Teaching Hints

Explain to students that two events are described as complementary if they are the only two possible outcomes. Use the visualisation to show the rule for ascertaining the complementary event.

Activities

If the probability of an event occurring is $\frac{9}{10}$ what is the probability of the event not occurring?

$\frac{1}{10}$
 $\frac{3}{10}$
 $\frac{9}{10}$
 $\frac{1}{5}$

Easier Example

A swimming pool has 4 purple deck chairs and 8 blue deck chairs. If a deck chair is selected at random, what is the probability of it not being purple?

$\frac{2}{3}$
 $\frac{1}{3}$
 $\frac{1}{2}$
 $\frac{2}{1}$

Medium Example

A fridge contains 20 bottles of juice, 30 bottles of water and 32 bottles of soft drink. If a drink is selected at random, what is the probability of it not being a bottle of juice?

$\frac{16}{41}$
 $\frac{31}{41}$ ✓
 $\frac{15}{41}$
 $\frac{10}{41}$

Harder Example