Español

✓ 1   2   3   4   5   6   7

If $P(A) = 0.58$, $P(B) = 0.5$, and $P(A \text{ and } B) = 0.44$, find $P(A \text{ or } B)$.

$P(A \text{ or } B) = $ 0.64

Español

✓ 1   ✓ 2   3   4   5   6   7

If $P(A) = 0.5$, $P(B) = 0.3$, and A and B are mutually exclusive, find $P(A \text{ or } B)$.

$P(A \text{ or } B) = $ 0.8

If $P(A) = 0.58$, $P(B) = 0.5$, and $P(A \text{ and } B) = 0.44$, find $P(A \text{ or } B)$.

Try Another   Continue

Save For Later   Submit Assignment

✓ 1   ✓ 2   ✓ 3   4   5   6   7

Español

Car repairs: Let E be the event that a new car requires engine work under warranty and let T be the event that the car requires transmission work under warranty. Suppose that $P(E) = 0.03$, $P(T) = 0.04$, $P(E \text{ and } T) = 0.02$.

(a) Find the probability that the car needs work on either the engine, the transmission, or both.

(b) Find the probability that the car needs no work on the engine.

Part 1 of 2

(a) Find the probability that the car needs work on either the engine, the transmission, or both.

The probability that the car needs work on either the engine, the transmission, or both is 0.05.

Part 2 of 2

(b) Find the probability that the car needs no work on the engine.

The probability that the car needs no work on the engine is 0.97.

Try Another   Continue   Save For Later   Submit Assignment

Español

✓ 1   ✓ 2   ✓ 3   ✓ 4   5   6   7

Computer purchases: Out of 767 large purchases made at a computer retailer, 324 were tablets, 382 were laptop computers, and 61 were desktop computers. As a part of an audit, one purchase record is sampled at random. Round the answers to four decimal places, as needed.

Part 1 of 2

✓

(a) What is the probability that it is a tablet?

The probability that it is a tablet is 0.4224 .

Part: 2 / 2

Part 2 of 2

✓

(b) What is the probability that it is not a laptop computer?

The probability that it is not a laptop computer is 0.5020 .

Alternate Answer:

The probability that it is not a laptop computer is 0.502.

Try Another   Continue   Save For Later   Submit Assignment

✓ 1   ✓ 2   ✓ 3   ✓ 4   ✓ 5   6   7

How are your grades? In a recent semester at a local university, 600 students enrolled in both Statistics I and Psychology I. Of these students, 88 got an A in statistics, 68 got an A in psychology, and 46 got an A in both statistics and psychology. Round the answers to four decimal places, as needed.

Part 1 of 2

(a) Find the probability that a randomly chosen student got an A in statistics or psychology or both.

The probability that a randomly chosen student got an A in statistics or psychology or both is [0.1833].

Part 2 of 2

(b) Find the probability that a randomly chosen student did not get an A in psychology.

The probability that a randomly chosen student did not get an A in psychology is [0.8867].

Try Another   Continue   Save For Later   Submit Assignment

Weight and cholesterol: The National Health Examination Survey reported that in a sample of 13,721 adults, 6723 had high cholesterol (total cholesterol above 200 mg/dL), 8370 were overweight (body mass index above 25), and 4391 were both overweight and had high cholesterol. A person is chosen at random from this study. Round all answers to four decimal places.

Part 1 of 4

(a) Find the probability that the person is overweight.

The probability that the person is overweight is 0.61 .

Part 2 of 4

(b) Find the probability that the person has high cholesterol.

The probability that the person has high cholesterol is 0.49 .

Part 3 of 4

(c) Find the probability that the person does not have high cholesterol.

The probability that the person does not have high cholesterol is 0.51 .

Part: **4 / 4**

Part 4 of 4

(d) Find the probability that the person is overweight or has high cholesterol.

The probability that the person is overweight or has high cholesterol is 0.78 .

Try Another   Continue

Save For Later   Submit Assignment

Español

✓ 1   ✓ 2   ✓ 3   ✓ 4   ✓ 5   ✓ 6   ✓ 7

Sick children: There are 27 students in Mrs. Bush's sixth-grade class. On a cold winter day in February, many of the students had runny noses and sore throats. After examining each student, the school nurse constructed the following table. Round the answers to four decimal places, as needed.

	Sore Throat	No Sore Throat
Runny Nose	8	11
No Runny Nose	5	3

Send data to Excel

(a) Find the probability that a randomly selected student has a runny nose.

(b) Find the probability that a randomly selected student has a sore throat.

(c) Find the probability that a randomly selected student has a runny nose or a sore throat.

(d) Find the probability that a randomly selected student has neither runny nose nor a sore throat.

Part 1 of 4   ✓

(a) Find the probability that a randomly selected student has a runny nose.

The probability that a randomly selected student has a runny nose is 0.7037 .

Part 2 of 4   ✓

(b) Find the probability that a randomly selected student has a sore throat.

The probability that a randomly selected student has a sore throat is 0.4815 .

Part 3 of 4   ✓

(c) Find the probability that a randomly selected student has a runny nose or a sore throat.

The probability that a randomly selected student has a runny nose or sore throat is 0.8889 .

Part 4 of 4   ✓

(d) Find the probability that a randomly selected student has neither runny nose nor a sore throat

The probability that a randomly selected student has neither runny nose nor a sore throat is 0.1111 .

Try Another   Save For Later   Submit Assignment

Español

✓ 1   ✓ 2   ✓ 3   4   5   6   7

Car repairs: Let E be the event that a new car requires engine work under warranty and let T be the event that the car requires transmission work under warranty. Suppose that $P(E) = 0.03$, $P(T) = 0.04$, $P(E \text{ and } T) = 0.02$.

(a) Find the probability that the car needs work on either the engine, the transmission, or both.

(b) Find the probability that the car needs no work on the engine.

Part 1 of 2

Example

? SAMPLE QUESTION

Car repairs: Let E be the event that a new car requires engine work under warranty and let T be the event that the car requires transmission work under warranty. Suppose that $P(E) = 0.1$, $P(T) = 0.07$, $P(E \text{ and } T) = 0.02$.

(a) Find the probability that the car needs work on either the engine, the transmission, or both.

(b) Find the probability that the car needs no work on the transmission.

∞ EXPLANATION

(a) Find the probability that the car needs work on either the engine, the transmission, or both.

Using the General Addition Rule,

The General Addition Rule
For any two events A and B, $$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

we compute

$$P(E \text{ or } T) = P(E) + P(T) - P(E \text{ and } T)$$
$$= 0.1 + 0.07 - 0.02$$
$$= 0.15$$

(b) Find the probability that the car needs no work on the transmission.

Using the Rule of Complements,

The Rule of Complements
$$P(A^C) = 1 - P(A)$$

we compute

$$P(\text{not } T) = P(T^C)$$
$$= 1 - P(T)$$
$$= 1 - 0.07$$
$$= 0.93$$

✏ ANSWER

Part 1 of 2

The probability that the car needs work on either the engine, the transmission, or both is 0.15.

Part 2 of 2

The probability that the car needs no work on the transmission is 0.93.

Try Another   Continue   Save For Later   Submit Assignment

Weight and cholesterol: The National Health Examination Survey reported that in a sample of 13,721 adults, 6723 had high cholesterol (total cholesterol above 200 mg/dL), 8370 were overweight (body mass index above 25), and 4391 were both overweight and had high cholesterol. A person is chosen at random from this study. Round all answers to four decimal places.

Part 1 of 4

(a) Find the probability that the person is overweight.

Example

? **SAMPLE QUESTION**

Weight and cholesterol: The National Health Examination Survey reported that in a sample of 13,518 adults, 6759 had high cholesterol (total cholesterol above 200 mg/dL), 8652 were overweight (body mass index above 25), and 4055 were both overweight and had high cholesterol. A person is chosen at random from this study. Round all answers to four decimal places.

(a) Find the probability that the person is overweight.

(b) Find the probability that the person has high cholesterol.

(c) Find the probability that the person does not have high cholesterol.

(d) Find the probability that the person is overweight or has high cholesterol.

∞ **EXPLANATION**

(a) Find the probability that the person is overweight.

There are 8652 overweight adults out of a total of 13,518 sampled adults.

Therefore,

$$P(\text{Overweight}) = \frac{8652}{13{,}518} = 0.64$$

(b) Find the probability that the person has high cholesterol.

There are 6759 adults with high cholesterol out of a total of 13,518 sampled adults.

Therefore,

$$P(\text{High cholesterol}) = \frac{6759}{13{,}518} = 0.5$$

(c) Find the probability that the person does not have high cholesterol.

We will use the Rule of Complements to solve this.

The Rule of Complements
$P(A^c) = 1 - P(A)$

We found in part (b) that the probability that a person has high cholesterol is 0.5.

Therefore,

$$P(\text{Person does not have high cholesterol}) = 1 - P(\text{High cholesterol})$$
$$= 1 - 0.5$$
$$= 0.5$$

(d) Find the probability that the person is overweight or has high cholesterol.

We will use the General Addition Rule to solve this.

The General Addition Rule
For any two events A and B,
$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$

Therefore,

$$P(\text{Overweight or high cholesterol}) = P(\text{Overweight}) + P(\text{High cholesterol}) - P(\text{Overweight and high cholesterol})$$
$$= \frac{8652}{13{,}518} + \frac{6759}{13{,}518} - \frac{4055}{13{,}518}$$
$$= 0.64 + 0.5 - 0.3$$
$$= 0.84$$

✎ **ANSWER**

Part 1 of 4

The probability that the person is overweight is 0.64.

Part 2 of 4

The probability that the person has high cholesterol is 0.5.

Part 3 of 4

The probability that the person does not have high cholesterol is 0.5.

Part 4 of 4

The probability that the person is overweight or has high cholesterol is 0.84.

Try Another   Continue   Save For Later   Submit Assignment

✓1   ✓2   ✓3   ✓4   ✓5   ✓6   ✓7

Sick children: There are 27 students in Mrs. Bush's sixth-grade class. On a cold winter day in February, many of the students ha... throats. After examining each student, the school nurse constructed the following table. Round the answers to four decimal place...

	Sore Throat	No Sore Throat
Runny Nose	8	11
No Runny Nose	5	3

Example   ✕

Part 3 of 4

(c) Find the probability that a randomly selected student has a runny nose or a sore throat.

The probability that a randomly selected student has a runny nose or sore throat is 0.8889 .

Part 4 of 4

(d) Find the probability that a randomly selected student has neither runny nose nor a sore throat.

The probability that a randomly selected student has neither runny nose nor a sore throat is 0.1111 .

(Try Another)