

Stats / Computing conditional probability using a two-way frequency table

Computing conditional probability using a two-way frequency table

At a school's open house, T-shirts and sweatshirts were sold. Each item was purchased by either a student or a parent. The two-way frequency table summarizes a random sample of 50 items sold that night.

	T-shirt	Sweatshirt	
Student	12	11	23
Parent	18	9	27
	30	20	50

Let student be the event that an item randomly chosen from among those sold was purchased by a student.
 Let T-shirt be the event that an item randomly chosen from among those sold was a T-shirt.
 Find the following probabilities. Write your answers as decimals.

(a) $P(\text{T-shirt}) = \square$
 (b) $P(\text{student and T-shirt}) = \square$
 (c) $P(\text{student} | \text{T-shirt}) = \square$

$P(\text{T-shirt}) = \frac{30}{50} = 0.60$
 $P(\text{student and T-shirt}) = \frac{12}{50} = 0.24$
 $P(\text{student} | \text{T-shirt}) = \frac{12}{30} = 0.4$

Note: The Solve feature is not available to students.

Explanation Try Another Check Solve

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Computing conditional probability using a two-way frequency table

Dr. Perry is a veterinarian who sees only dogs and cats. In each appointment, he may or may not give the animal a vaccine. The two-way frequency table summarizes Dr. Perry's 80 appointments last week.

	Vaccine	No vaccine	
Dog	27	33	60
Cat	12	8	20
	39	41	80

Let cat be the event that a randomly chosen appointment (from the table) involved a cat.
 Let vaccine be the event that a randomly chosen appointment (from the table) included a vaccine.
 Find the following probabilities. Write your answers as decimals.

(a) $P(\text{cat}) = \square$
 (b) $P(\text{vaccine and cat}) = \square$
 (c) $P(\text{vaccine} | \text{cat}) = \square$

$P(\text{cat}) = \frac{20}{80} = 0.25$
 $P(\text{vaccine and cat}) = \frac{12}{80} = 0.15$
 $P(\text{vaccine} | \text{cat}) = \frac{12}{20}$

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Explanation Try Another Check Solve

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Computing conditional probability using a two-way frequency...



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Computing conditional probability using a two-way frequency table

Dr. Alexander is a veterinarian who sees only dogs and cats.

In each appointment, he may or may not give the animal a vaccine.
The two-way frequency table summarizes Dr. Alexander's 50 appointments last week.

	Dog	Cat	
Vaccine	12	18	30
No vaccine	13	7	20
	25	25	50

Let vaccine be the event that a randomly chosen appointment (from the table) included a vaccine.

Let dog be the event that a randomly chosen appointment (from the table) involved a dog.

Find the following probabilities. Write your answers as decimals.

(a) $P(\text{vaccine}) = \square$

(b) $P(\text{dog and vaccine}) = \square$

(c) $P(\text{dog} \mid \text{vaccine}) = \square$

$$P(\text{vaccine}) = \frac{30}{50} = 0.6$$

$$P(\text{dog and vaccine}) = \frac{12}{50} = 0.24$$

$$P(\text{dog} \mid \text{vaccine}) = \frac{12}{30} = 0.4$$

↑ given ↑ focus on vaccine row

Note: The Solve feature is not available to students.

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Computing conditional probability using a two-way frequency table

At a school's open house, T-shirts and sweatshirts were sold.

Each item was purchased by either a student or a parent.

The two-way frequency table summarizes a random sample of 50 items sold that night.

	Student	Parent	
T-shirt	8	19	27
Sweatshirt	12	11	23
	20	30	50

Let T-shirt be the event that an item randomly chosen from among those sold was a T-shirt.

Let student be the event that an item randomly chosen from among those sold was purchased by a student.

Find the following probabilities. Write your answers as decimals.

(a) $P(\text{student}) = \square$

(b) $P(\text{T-shirt and student}) = \square$

(c) $P(\text{T-shirt} \mid \text{student}) = \square$

$$P(\text{student}) = \frac{20}{50} = 0.4$$

$$P(\text{T-shirt and student}) = \frac{8}{50} = 0.16$$

$$P(\text{T-shirt} \mid \text{student}) = \frac{8}{20} = 0.4$$

↑ given ↑ focus on this row/column
student column

what you are looking at
total

Note: The Solve feature is not available to students.

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#CountingAndProbability

#Probability

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