

Answer on Question #44232, Math, Statistics and Probability

2.47 Construct a cross-tabulation table using cola preference (Rola or Koka) as the row variable and the number of 12-packs consumed in a typical month (categories 0 through 5, 6 through 10, and more than 10) as the column variable. Based on the table, answer the following:

- a. How many shoppers who preferred Rola-Cola in the blind taste test purchase 10 or fewer 12-packs of cola drinks in a typical month?
- b. How many shoppers who preferred Koka-Cola in the blind taste test purchase 6 or more 12-packs of cola drinks in a typical month?
- c. What kind of relationship, if any, seems to exist between cola preference and cola consumption in a typical month?

Remark. The sample is missed. We suppose that this problem is from Essentials of Business Statistics, 4th Edition. The missed table is

| Shopper | Cola Preference | Previously Purchased? | Sweetness Preference | Monthly Cola Consumption | Shopper | Cola Preference | Previously Purchased? | Sweetness Preference | Monthly Cola Consumption |
|---------|-----------------|-----------------------|----------------------|--------------------------|---------|-----------------|-----------------------|----------------------|--------------------------|
| 1 | Koka | No | Very Sweet | 4 | 21 | Koka | No | Very Sweet | 4 |
| 2 | Rola | Yes | Sweet | 8 | 22 | Rola | Yes | Not So Sweet | 9 |
| 3 | Koka | No | Not So Sweet | 2 | 23 | Rola | Yes | Not So Sweet | 3 |
| 4 | Rola | Yes | Sweet | 10 | 24 | Koka | No | Not So Sweet | 2 |
| 5 | Rola | No | Very Sweet | 7 | 25 | Koka | No | Sweet | 5 |
| 6 | Rola | Yes | Not So Sweet | 6 | 26 | Rola | Yes | Very Sweet | 7 |
| 7 | Koka | No | Very Sweet | 4 | 27 | Koka | No | Very Sweet | 7 |
| 8 | Rola | No | Very Sweet | 3 | 28 | Rola | Yes | Sweet | 8 |
| 9 | Koka | No | Sweet | 3 | 29 | Rola | Yes | Not So Sweet | 6 |
| 10 | Rola | No | Very Sweet | 5 | 30 | Koka | No | Not So Sweet | 3 |
| 11 | Rola | Yes | Sweet | 7 | 31 | Koka | Yes | Sweet | 10 |
| 12 | Rola | Yes | Not So Sweet | 13 | 32 | Rola | Yes | Very Sweet | 8 |
| 13 | Rola | Yes | Very Sweet | 6 | 33 | Koka | Yes | Sweet | 4 |
| 14 | Koka | No | Very Sweet | 2 | 34 | Rola | No | Sweet | 5 |
| 15 | Koka | No | Not So Sweet | 7 | 35 | Rola | Yes | Not So Sweet | 3 |
| 16 | Rola | Yes | Sweet | 9 | 36 | Koka | No | Very Sweet | 11 |
| 17 | Koka | No | Not So Sweet | 1 | 37 | Rola | Yes | Not So Sweet | 9 |
| 18 | Rola | Yes | Very Sweet | 5 | 38 | Rola | No | Very Sweet | 6 |
| 19 | Rola | No | Sweet | 4 | 39 | Koka | No | Not So Sweet | 2 |
| 20 | Rola | No | Sweet | 12 | 40 | Rola | Yes | Sweet | 5 |

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Solution.

The sample:

| Shopper | Cola Preference | Previously Purchased? | Monthly Cola Consumption | Shopper | Cola Preference | Previously Purchased? | Monthly Cola Consumption |
|---------|-----------------|-----------------------|--------------------------|---------|-----------------|-----------------------|--------------------------|
| 1 | Koka | No | 4 | 21 | Koka | No | 4 |
| 2 | Rola | Yes | 8 | 22 | Rola | Yes | 9 |
| 3 | Koka | No | 2 | 23 | Rola | Yes | 3 |
| 4 | Rola | Yes | 10 | 24 | Koka | No | 2 |
| 5 | Rola | No | 7 | 25 | Koka | No | 5 |
| 6 | Rola | Yes | 6 | 26 | Rola | Yes | 7 |
| 7 | Koka | No | 4 | 27 | Koka | No | 7 |
| 8 | Rola | No | 3 | 28 | Rola | Yes | 8 |
| 9 | Koka | No | 3 | 29 | Rola | Yes | 6 |
| 10 | Rola | No | 5 | 30 | Koka | No | 3 |
| 11 | Rola | Yes | 7 | 31 | Koka | Yes | 10 |
| 12 | Rola | Yes | 13 | 32 | Rola | Yes | 8 |
| 13 | Rola | Yes | 6 | 33 | Koka | Yes | 4 |
| 14 | Koka | No | 2 | 34 | Rola | No | 5 |
| 15 | Koka | No | 7 | 35 | Rola | Yes | 3 |

| | | | | | | | |
|----|------|-----|----|----|------|-----|----|
| 16 | Rola | Yes | 9 | 36 | Koka | No | 11 |
| 17 | Koka | No | 1 | 37 | Rola | Yes | 9 |
| 18 | Rola | Yes | 5 | 38 | Rola | No | 6 |
| 19 | Rola | No | 4 | 39 | Koka | No | 2 |
| 20 | Rola | No | 12 | 40 | Rola | Yes | 5 |

Cross-tabulation table in the blind taste test (Previously Purchased? No):

| | 0 through 5 | 6 through 10 | more than 10 | Total |
|-------|-------------|--------------|--------------|-------|
| Koka | 11 | 2 | 1 | 14 |
| Rola | 4 | 2 | 1 | 7 |
| Total | 15 | 4 | 2 | 21 |

a. From the cross-tabulation table $4 + 2 = 6$ shoppers prefer 10 or fewer 12-packs of Rola-Cola drinks in a typical month.

b. From the cross-tabulation table $2 + 1 = 3$ shoppers prefer 6 or more 12-packs of Koka-Cola drinks in a typical month.

c.

Row percentages for each Cola type:

| | 0 through 5 | 6 through 10 | more than 10 | Total |
|------|-------------|--------------|--------------|-------|
| Koka | 78.57% | 14.28% | 7.14% | 100% |
| Rola | 57.14% | 28.57% | 14.28% | 100% |

From the table we may notice that shoppers that prefer who preferred Koka-Cola and Rola-Cola in the blind purchase 0 through 5 12-packs of cola drinks in a typical month more often.