Answer on Question # 41828, Math, Statistics and Probability

A food company is planning to market a new type of frozen yogurt. However, before marketing this yogurt, the company wants to find what percentage of the people like it. The company's management has decided that it will market this yogurt only if at least 35% of the people like it. The company's research department selected a random sample of 400 persons and asked them to taste this yogurt. Of these 400 persons, 112 said they like it. Test at 2.5% significance level, can you conclude that the company should market this yogurt? (5 marks)

Solve:

1) $\Omega = 400$ – all people;
2) $\mathrm{A} = 112$ – people who liked the yogurt;
3) $P = \frac{A}{\Omega} = \frac{112}{400} = 0.38 \Leftrightarrow p_0 = 38\%$ - percent so many people liked the yogurt without significance level;
4) $S_l = 2.5\%$ - significance level;
5) $3),4) \Rightarrow p_{real} \in [38\% - 2.5\%; 38\% + 2.5\%] \Leftrightarrow p_{real} \in [35.5\%; 40.5\%]$ - real percent people, who liked the yogurt
6) $p_{S_l} = 35\%;\ p_{S_l} \notin [35.5\%; 40.5\%];\ p_{S_l} < 35.5\%$
7) $6) \Rightarrow$ - Company should market this yogurt.

Answer:

Company should market this yogurt.