

How Probability Affects the Binomial Distribution

Recall that the binomial distribution can be described by two parameters, n and p .

To examine how these parameters affect the distribution, three plots have been provided representing the probability of closing between one and 12 sales per week for three salespeople. The probability, p , is different for each individual.

Your task is to select which salesperson has the highest probability of closing nine or more sales per week.

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Daily XP 150

How probability affects the binomial distribution

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George

Number of sales per week	Probability
1	0.05
2	0.14
3	0.22
4	0.23
5	0.18
6	0.10
7	0.04
8	0.01
9	0.00
10	0.00
11	0.00
12	0.00

Izzy

Number of sales per week	Probability
1	0.00
2	0.01
3	0.03
4	0.08
5	0.16
6	0.21
7	0.21
8	0.16
9	0.08
10	0.03
11	0.01
12	0.00

James

Number of sales per week	Probability
1	0.00
2	0.00
3	0.01
4	0.02
5	0.06
6	0.13
7	0.19
8	0.22
9	0.18
10	0.11
11	0.04
12	0.01

Answer the question

50XP

Possible Answers

Select one answer

☒ George

PRESS 1

☐ Izzy

PRESS 2

☐ James

PRESS 3

Take Hint (-15 XP)

Submit Answer

Answer

Answer: James

Explanation: The salesperson with the highest probability of closing nine or more sales is the one with a distribution skewed towards higher sales. From the plots, James's distribution is concentrated more towards higher sales, and the probability of closing nine or more sales is greater than that of George or Izzy.

Explanation of the Answer

To identify the salesperson with the highest probability of closing nine or more sales per week:

1. Observe the distributions provided in the plots.
2. Check the areas (heights of bars) corresponding to nine or more sales.
3. For George, the bars for nine or more sales are much smaller compared to James.
4. For Izzy, the distribution is more centered around the middle values (6-8 sales), with lower probabilities for nine or more sales.
5. James has the highest bars for nine or more sales, indicating a greater probability compared to George and Izzy.

Therefore, James has the highest probability of closing nine or more sales per week.