

For questions 1 – 4: 100 people were surveyed and asked whether or not they were a basketball fan. Here are the results:

	Basketball Fan	Not a Fan
Man	36	16
Woman	24	24

- 1) What is the probability that a person selected was a woman and a basketball fan?
 

A) 16%                      B) 24%                      C) 25%                      D) 36%                      E) 50%
- 2) What is the probability that a person selected was a man?
 

A) 40%                      B) 48%                      C) 50%                      D) 52%                      E) 60%
- 3) What is the probability that a person selected was either a man or not a basketball fan?
 

A) 88%                      B) 84%                      C) 80%                      D) 76%                      E) 72%
- 4) What is the probability that a person selected was a man, given that the person selected was a basketball fan?
 

A) 60%                      B) 69%                      C) 50%                      D) 55%                      E) 52%

For questions 5 – 8: Three fair six-sided dice are rolled.

- 5) What is the probability that the sum of the numbers on the three dice is 3?
 

A) 1/216                      B) 1/72                      C) 1/36                      D) 1/108                      E) 1/6
- 6) What is the probability that all three dice show the same number?
 

A) 1/216                      B) 1/72                      C) 1/36                      D) 1/108                      E) 1/6
- 7) What is the probability that all three dice show different numbers?
 

A) 4/9                      B) 2/9                      C) 1/36                      D) 2/3                      E) 5/9
- 8) What is the probability that the sum of the numbers on the three dice is 4?
 

A) 1/216                      B) 1/72                      C) 1/36                      D) 1/108                      E) 1/6



For questions 17 – 20: John is a 75% free throw shooter. Bill is a 60% free throw shooter. Willie is a 90% free throw shooter. [Treat each free throw as an independent event.]

17) What is the probability that John makes at least 1 out of 2 free throws?

- A) 56.25%                      B) 75%                      C) 93.75%                      D) 95%                      E) 96.75%

18) If Bill shoots 4 free throws, find the probability that he makes at least 2.

- A) 78.24%                      B) 21.76%                      C) 88.12%                      D) 82.08%                      E) 17.92%

19) Find the probability that Willie misses two consecutive free throws.

- A) 1%                      B) 2%                      C) 3%                      D) 4%                      E) 5%

20) If Willie shoots 8 free throws, find the probability that he makes exactly 7.

- A) 87.5%                      B) 75%                      C) 38.3%                      D) 4.8%                      E) 51.6%

For questions 21 – 24: Consider the data set {2, 6, 7, 8, 11, 14}.

21) Find the median.

- A) 7                      B) 7.5                      C) 8                      D) 8.5                      E) 11.5

22) Find the mean.

- A) 7                      B) 7.5                      C) 8                      D) 8.5                      E) 11.5

23) Find the standard deviation.

- A) 4.10                      B) 4.15                      C) 4.20                      D) 4.22                      E) 4.23

24) Find the interquartile range.

- A) 5                      B) 7                      C) 7.5                      D) 8                      E) 12

For questions 25 – 32: A study is conducted to determine the average grade in a College Algebra course. The data is normally distributed with mean = 74.2 and standard deviation = 10.1.

25) If a person is selected at random, what is the probability that their grade is greater than or equal to 94.4?

- A) 3%                      B) 4%                      C) 5%                      D) 6%                      E) 7%

26) What percent of the population has grades between 64.1 and 84.3?

- A) 64%                      B) 68%                      C) 50%                      D) 60%                      E) 55%

27) What is corresponding z-score for a grade of 99?

- A) 2.16                      B) 2.26                      C) 2.36                      D) 2.46                      E) 2.56

28) What percent of the population has a grade between 64.1 and 94.4?

- A) 64%                      B) 68%                      C) 74%                      D) 78%                      E) 82%

29) What percent of the population had a grade greater than 90?

- A) 1%                      B) 3%                      C) 5%                      D) 7%                      E) 9%

30) What percent of the population had a grade between 80 and 90?

- A) 14%                      B) 16%                      C) 18%                      D) 20%                      E) 22%

31) What percent of the population had a grade between 70 and 80?

- A) 38%                      B) 41%                      C) 44%                      D) 47%                      E) 50%

32) What percent of the population had a grade lower than 60?

- A) 2%                      B) 4%                      C) 6%                      D) 8%                      E) 10%

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For questions 33 – 34: 100 students are surveyed and asked if they participate in activities and/or athletics. 78 students responded that they participate in activities, and 46 students responded that they participate in athletics. There are 12 students who participate in neither activities nor athletics.

33) How many students participate in both activities and athletics?

- A) 10                      B) 24                      C) 36                      D) 42                      E) 52

34) How many students participate in either activities or athletics, but not both?

- A) 10                      B) 24                      C) 36                      D) 42                      E) 52

For questions 35 – 38: For a high school biology class, George wants to determine the relationship between a person's height (inches) and shoe size. He collects the following data:

Height (x)	61	63	68	72	76	81
Shoe Size (y)	6	7	9	11	13	17

35) Describe the correlation between the two variables.

- A) Positive, Strong Correlation      B) Positive, Weak Correlation      C) No Correlation  
D) Negative, Weak Correlation      E) Negative, Strong Correlation

36) Find the linear regression equation.

- A)  $y = .641x - 19.657$       B)  $y = .382x - 28.712$       C)  $y = .527x - 26.507$   
D)  $y = .733x - 21.863$       E)  $y = .489x - 23.986$

37) Use the linear regression equation to predict the shoe size of an 80 inch person. Round to the nearest integer.

- A) 13      B) 14      C) 15      D) 16      E) 17

38) Use the linear regression equation to predict the height of someone with a size 8.5 shoe. Round to the nearest tenth.

- A) 66.2 inches      B) 66.4 inches      C) 66.6 inches      D) 66.8 inches      E) 67.0 inches
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39) Find the probability that a random selected three-digit number has three distinct digits.

- A) 72%      B) 80.8%      C) 90%      D) 81%      E) 64.8%

40) In how many ways can 5 objects be arranged on a circular display?

- A) 12      B) 15      C) 24      D) 48      E) 120

41) How many different ways are there to arrange the letters KANSAS?

- A) 120      B) 720      C) 60      D) 360      E) 180

42) How many different ways are there to select a committee of 3 people from 7 candidates?

- A) 210      B) 18      C) 35      D) 54      E) 5040