SBS Data Math Assessment

Data Analysts are unique because they hold traits that allow them to effectively communicate data findings to stakeholders. Why is a math assessment important? Data analysts serve as data gatekeepers for organizations, so stakeholders can understand data and use it to make informed, strategic business decisions. Before you can manipulate the data and create visualizations of what the data is saying, you will need to identify key performance indicators, business objectives, and know how to effectively research the data story. The math assessment will look at your overall performance, your ability to learn the curriculum, and how you will guide stakeholders in effective decision-making.

# How Should you Prepare?

To prepare for the math assessment, familiarize yourself with the concepts of basic arithmetic, algebra, descriptive statistics, probability, and percentages. It is likely that there will be several questions around each area. It is important that you read the entire question or scenario carefully and identify important information. If you are not sure of the answer, eliminate the incorrect choices to the best of your ability using your problem solving and critical thinking skills.

# Assessment Learning Outcomes

At the end of this assessment, you will be able to:

1. Demonstrate your knowledge in arithmetic and order of operations.
2. Demonstrate your knowledge of basic algebraic expressions.
3. Demonstrate your knowledge in descriptive statistics and probability.
4. Demonstrate your ability to problem solve and think critically.

# Ready to start the assessment?

1. The assessment is open book, meaning that you can use all accessible resources including internet searches for assistance.
2. Do not close out or refresh your browser during the assessment, you will get locked out and unable to finish.
3. Once you click next you will have 30 minutes to complete all multiple-choice questions.

Good luck and have fun!

# Data Analytics Math Assessment Questions:

1. Order of operations is a sequence of steps in math. What is the order of operations?
   1. P - Parentheses first, E - Exponents, MD - Multiplication and Division (left-to-right), AS - Addition and Subtraction (left-to-right) **CORRECT ANSWER**
   2. E - Exponents first, MD - Multiplication and Division (left-to-right), AS - Addition and Subtraction (left-to-right), P - parentheses
   3. AS - Addition and Subtraction (left-to-right) first, P - parentheses, E - Exponents first, MD - Multiplication and Division (left-to-right)
   4. MD - Multiplication and Division (left-to-right) first, E - Exponents first, MD - Multiplication and Division (left-to-right), P - parentheses
2. Jo’s age plus Mo’s age is 27.

Jo’s age plus Flo’s age is 38.

Mo’s age plus Flo’s age is 33.

What is Flo’s age?

* 1. 11
  2. 16
  3. 22 - **CORRECT ANSWER**
  4. 9

1. Working for a large corporation as a data analyst, you have been given the task to monitor employee traction over a specified period of time. In June, 305 employees worked for the corporation. In July, 30 employees resigned and 11 were new hires. In August, 9 employees resigned and 23 were new hires. In September, there were no resignations and 17 new hires. What was the total number of employees as of October 1st?
   1. 356
   2. 317 - **CORRECT ANSWER**
   3. 254
   4. 266
2. Your company has asked you to collect the response rate of employees that took the satisfaction survey that was sent out. After looking at the response data, you see that 43 employees did not respond to the survey and 148 employees responded. What was the response rate of those employees that responded with the total number of employees being 191? All employees either responded to the survey or didn’t respond to the survey.
   1. 22.5% response rate
   2. 77.4% response rate - **CORRECT ANSWER**
   3. 20% response rate
   4. 54.9% response rate
3. How tall is a bush that is 3 feet shorter than a fence that is 4 times the height of the bush?
   1. 3 feet
   2. 1 foot - **CORRECT ANSWER**
   3. 5 feet
   4. 10 feet
4. What is the next number in the sequence: 100, 99, 96, 91, 84, 75, 64?
   1. 60
   2. 48
   3. 32
   4. 51 - **CORRECT ANSWER**
5. Solve for x: x - 31 = 8
   1. x=23
   2. x=31
   3. x=39 **CORRECT ANSWER**
   4. x=8
6. Assume that you are the data analyst for a local community college. You have been given the task to identify student success rates in PSY 101. After digging through the data, you know that of a student population of 500, 65 students did not complete the course. What percentage of students did complete the course successfully? 91% of the students in PSY 101 were successful. All students either completed the course or didn’t complete the course.
   1. 13 % of the students in PSY 101 were successful.
   2. 87 % of the students in PSY 101 were successful. - **CORRECT ANSWER**
   3. There is not enough information to determine the success rate of students in PSY 101.
7. You have been presented with a task from Human Resources to determine employee monthly raises. Michelle Smith in the legal department has a monthly salary of $3650.00. If Michelle receives a salary increase of 7%, what is her new monthly salary?
   1. $3905.50 is Michelle’s new monthly salary. - **CORRECT ANSWER**
   2. $4088 is Michelle’s new monthly salary.
   3. $3,675.55 is Michelle’s new monthly salary.
   4. $3,750 is Michelle’s new monthly salary.
8. In general, the nth percentile is a value such that n% of the observations fall at or below it. After conducting an analysis about student enrollment, you conclude that 25% of students fall below the age of 25. Which quartile do those students fall into?
   1. First Quartile, Q1 - **CORRECT ANSWER**
   2. Second Quartile, Q2
   3. Third Quartile, Q3
   4. Fourth Quartile, Q4
9. When running employee analysis, you are asked to identify how many employees are in each department: Human Resources = 35%, Marketing = 15%, Implementation = 25%, and Janitorial = 25%. Out of a total of 2500 employees, how many are in the Marketing department:
   1. 425
   2. 714
   3. 375 - **CORRECT ANSWER**
   4. 525
10. With a total of 2500 employees, Management has determined that adding headcount to the Marketing department will dramatically increase business and have a positive impact on marketing bandwidth. Currently, Marketing makes up 15% of the staff. How many total employees will the company have if Marketing is increased by 20%?
    1. 2625 - **CORRECT ANSWER**
    2. 2675
    3. 2700
    4. 3000
11. If you want to determine a selected individual or group that represents a certain group of members, you will want to summarize your data by finding:
    1. The population - **CORRECT ANSWER**
    2. The sample
    3. The distribution
    4. Parameters
12. As a data analyst, you are tasked with comparing neighborhood income. You want to find the average income across neighborhood A and neighborhood B. Which central means of measurement would be more appropriate for your analysis when comparing across both neighborhoods?
    1. Mean - **CORRECT ANSWER**
    2. Median
    3. Mode
    4. Standard deviation
13. What is the standard deviation of annual income across both neighborhoods: The households in neighborhood A have the following annual incomes: 40000, 42500, 45000, 50000, 50000, 52500, 55000, 57500, 60000

The households in neighborhood B have the following annual incomes: 100000, 100000, 100000, 100000, 65000, 75000, 85000, 91000, 91000

* 1. 20525.45
  2. 68735.29
  3. 22525.45 - **CORRECT ANSWER**
  4. 67343.75

1. Find the average of the number sequence: 1 4 5 6 8 8 9 10 10 11 11 13 13 13 14 14 15 15 15 15.
   1. 14
   2. 11
   3. 15
   4. 10.5 - **CORRECT ANSWER**
2. The Administration office for your high school is asking for data on students' SAT scores. What is the mode in this number sequence for SAT results: 11, 13,13, 16, 17, 17, 19, 19, 19, 22, 22, 23?
   1. 7
   2. 8
   3. 13
   4. 19 - **CORRECT ANSWER**
3. You have been tasked with finding out the average of training performance across departments. Two departments were given a training assessment. The first department had 25 employees and the average test score was 86%. The second department had 15 employees and their average score was 94%. If you combined the test scores of both departments, what is the combined average of both departments together?
   1. 87%
   2. 89% - **CORRECT ANSWER**
   3. 91%
   4. 93%
4. In 7 days, the sales team sold 98 cars. Each day after the first, they sold 2 more than the day before. What is the difference between the average (arithmetic mean) number of cars sold per day and the median number of cars sold during the 7 days?
   1. There is no difference between the average and the median number of cars sold. - **CORRECT ANSWER**
   2. 14
   3. 8
   4. 12
5. A pair of headphones that regularly cost $40 are on sale for 30% off. As part of a promotion, each customer will also receive an additional discount on the marked sale price when purchased online. If the final price of the headphones was $22.40, what additional discount was applied to the marked sale price?
   1. 12%
   2. 80%
   3. 20% - **CORRECT ANSWER**
   4. 30%
6. If two-thirds of your weekly income is $480, what is one-fourth of your weekly income?
   1. $280
   2. $140
   3. $180 - **CORRECT ANSWER**
   4. $90