MATH 1551 Differential Calculus: Applications of Integrals

1. What is the main application of integrals?

A. To calculate the area under a curve
B. To calculate the volume of a solid
C. To calculate the length of a curve
D. To calculate the slope of a curve

2. Which of the following is NOT an application of integrals?

A. To calculate the area of a region
B. To calculate the length of a curve
C. To calculate the slope of a curve
D. To calculate the equation of a curve

3. What is the main difference between a definite and an indefinite integral?

A. A definite integral has a finite answer, while an indefinite integral does not.
B. A definite integral has a specific bounds of integration, while an indefinite integral does not.
C. A definite integral is always performed on a closed curve, while an indefinite integral is not.
D. A definite integral is always performed on a function, while an indefinite integral is not.

4. Which of the following is NOT a property of integrals?

A. They can be used to calculate areas and volumes.
B. They can be used to calculate lengths and slopes.
C. They can be used to calculate equations of curves.
D. They can be used to calculate limits.

5. What is the main difference between an integral and a derivative?

A. An integral is a measure of the area under a curve, while a derivative is a measure of the slope of a curve.
B. An integral is a measure of the length of a curve, while a derivative is a measure of the curvature of a curve.
C. An integral is a measure of the slope of a curve, while a derivative is a measure of the area under a curve.
D. An integral is a measure of the curvature of a curve, while a derivative is a measure of the length of a curve.

6. What is the main difference between a Riemann sum and an integral?

A. A Riemann sum is a way to approximate an integral, while an integral is the exact value of the area under a curve.
B. A Riemann sum is a way to approximate an integral, while an integral is the exact value of the length of a curve.
C. A Riemann sum is a way to approximate an integral, while an integral is the exact value of the slope of a curve.
D. A Riemann sum is a way to approximate an integral, while an integral is the exact value of the curvature of a curve.

7. What is the main difference between a definite integral and an indefinite integral?

A. A definite integral has a finite answer, while an indefinite integral does not.
B. A definite integral has a specific bounds of integration, while an indefinite

integral does not.
C. A definite integral is always performed on a closed curve, while an indefinite integral is not.
D. A definite integral is always performed on a function, while an indefinite integral is not.

8. What is the main difference between an integral and an antiderivative?

A. An integral is a way to calculate the area under a curve, while an antiderivative is a way to calculate the slope of a curve.
B. An integral is a way to calculate the length of a curve, while an antiderivative is a way to calculate the equation of a curve.
C. An integral is a way to calculate the slope of a curve, while an antiderivative is a way to calculate the area under a curve.
D. An integral is a way to calculate the equation of a curve, while an antiderivative is a way to calculate the length of a curve.

9. What is the main difference between a definite integral and a Riemann sum?

A. A definite integral is the exact value of the area under a curve, while a Riemann sum is a way to approximate an integral.
B. A definite integral is the exact value of the length of a curve, while a Riemann sum is a way to approximate an integral.
C. A definite integral is the exact value of the slope of a curve, while a Riemann sum is a way to approximate an integral.
D. A definite integral is the exact value of the curvature of a curve, while a Riemann sum is a way to approximate an integral.

10. What is the main difference between an indefinite integral and a Riemann sum?

A. An indefinite integral does not have a finite answer, while a Riemann sum is a way to approximate an integral.
B. An indefinite integral does not have specific bounds of integration, while a Riemann sum is a way to approximate an integral.
C. An indefinite integral is not always performed on a closed curve, while a Riemann sum is a way to approximate an integral.
D. An indefinite integral is not always performed on a function, while a Riemann sum is a way to approximate an integral.

Answer Key:

1. A
2. D
3. B
4. D
5. A
6. A
7. B
8. C
9. A
10. D