MATH 2551 Multivariable Calculus: Green's theorem

1. Green's theorem states that:

A. The area of a closed curve is equal to the sum of the areas of its component parts.
B. The integral of a function over a closed curve is equal to the sum of the integrals of its component parts.
C. The integral of a function over a closed curve is equal to the sum of the integrals of its component parts multiplied by the length of the curve.
D. The integral of a function over a closed curve is equal to the sum of the integrals of its component parts multiplied by the area of the curve.

2. Green's theorem can be used to:

A. Find the area of a closed curve.
B. Find the length of a closed curve.
C. Find the integral of a function over a closed curve.
D. All of the above.

3. Green's theorem is particularly useful when:

A. The function to be integrated is not known.
B. The curve over which the integration is to be performed is not known.
C. The function to be integrated is not continuous.
D. All of the above.

4. In order to use Green's theorem, it is necessary to:

A. Know the function to be integrated.
B. Know the curve over which the integration is to be performed.
C. Know the length of the curve.
D. Know the area of the curve.

5. Green's theorem can be used to find the area of a region bounded by a closed curve if:

A. The function to be integrated is known.
B. The curve over which the integration is to be performed is known.
C. The length of the curve is known.
D. The area of the curve is known.

6. Green's theorem can be used to find the length of a curve if:

A. The function to be integrated is known.
B. The curve over which the integration is to be performed is known.
C. The length of the curve is known.
D. The area of the curve is known.

7. Green's theorem can be used to find the integral of a function over a closed curve if:

A. The function to be integrated is known.
B. The curve over which the integration is to be performed is known.
C. The length of the curve is known.
D. The area of the curve is known.

8. If the function to be integrated is not known, Green's theorem can be used to:

A. Find the area of a closed curve.

B. Find the length of a closed curve.
C. Find the integral of a function over a closed curve.
D. All of the above.

9. If the curve over which the integration is to be performed is not known, Green's theorem can be used to:

A. Find the area of a closed curve.
B. Find the length of a closed curve.
C. Find the integral of a function over a closed curve.
D. All of the above.

10. If the function to be integrated is not continuous, Green's theorem can be used to:

A. Find the area of a closed curve.
B. Find the length of a closed curve.
C. Find the integral of a function over a closed curve.
D. All of the above.

Answer Key:

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