Assignment 11

Due on 2020-04-15, 23:59 IST.

1. If \( F = x^2 + y^2 \) and the curve \( C \) be the set of the parabola \( y = x^2 \) from \((0,0)\) to \((3,9)\), then \( \int_C F \cdot dr \) is.

(a) 0
(b) \( \frac{1}{2} \)
(c) 0
(d) \( \frac{2}{3} \)

2. No, the plane is not a triangle.

ACADEMIC ANSWER:

3. If \( F = (1, y^2, y^3) \) and \( C \) be the set of the arc \( y = x^3 \) from \((0,0,0)\) to \((1,1,1)\), then \( \int_C F \cdot ds \) is.

(a) \( \frac{1}{2} \)
(b) \( \frac{3}{2} \)
(c) \( \frac{1}{2} \)
(d) \( \frac{3}{2} \)

4. No, the plane is a triangle.

ACADEMIC ANSWER:

5. Let \( F \) be the single-valued and \( C \) be the set of the arc \( y = \sqrt{x^2 + 1} \) from \((1,0)\) to \((2, \sqrt{5})\), then \( \int_C F \cdot ds \) is.

(a) \( \frac{1}{2} \)
(b) \( \frac{1}{2} \)
(c) \( \frac{1}{2} \)
(d) \( \frac{3}{2} \)

6. No, the plane is not a triangle.

ACADEMIC ANSWER:

7. The nature of \( (x^2 + y^2) \) along the curve \( x^2 + y^2 = 1 \) is.

(a) \( x \) is (b) \( y \) is (c) \( x \) is (d) \( y \) is

8. No, the plane is not a triangle.

ACADEMIC ANSWER:

9. Let \( C \) be the segment of the line \( y = 3x \) from \((-1, -3)\) to \((1,3)\), then \( \int_C y^2 \, dx \) is.

(a) \( \frac{1}{2} \)
(b) \( \frac{3}{2} \)
(c) \( \frac{1}{3} \)
(d) \( \frac{3}{3} \)

10. No, the plane is not a triangle.

ACADEMIC ANSWER:

11. Let \( F = \frac{1}{x^2+y^2} \) and \( C \) be the curve in the xy-plane consisting of the straight line from \((1,0)\) to \((0,1)\), then \( \int_C F \cdot ds \) is.

(a) \( \pi \)
(b) \( 2 \pi \)
(c) \( 0 \)
(d) \( \frac{1}{2} \pi \)

12. No, the plane is not a triangle.

ACADEMIC ANSWER:

13. Let \( F = ((x+y), 0, 0) \) and \( C \) be the curve \( \{(x,y) | 0 \leq x \leq 1, 0 \leq y \leq x \} \), then \( \int_C F \cdot ds \) is.

(a) \( \frac{1}{2} \)
(b) \( \frac{1}{4} \)
(c) \( \frac{1}{2} \)
(d) \( \frac{3}{4} \)

14. No, the plane is not a triangle.

ACADEMIC ANSWER:

15. Let \( F = (1, 0, -1) \) and \( S \) be the surface of the cylinder \( x^2 + y^2 = 1 \) included in the first octant bounded \( z = 0 \) to \( z = 1 \), then \( \int_S F \cdot dS \) is.

(a) \( 1 \)
(b) \( 0 \)
(c) \( 1 \)
(d) \( 0 \)

16. No, the plane is not a triangle.

ACADEMIC ANSWER: