



AP Calculus BC 2000 Student Samples

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CALCULUS AB
SECTION II, Part A

Time—45 minutes

Number of problems—3

R₁

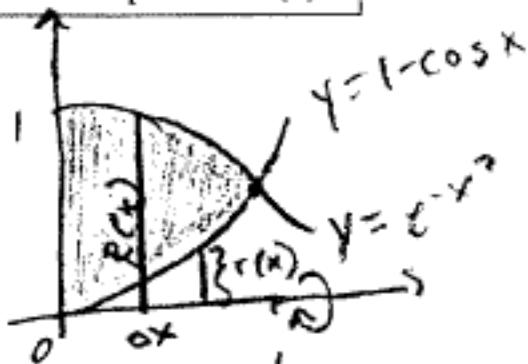
A graphing calculator is required for some problems or parts of problems.

Work for problem 1(a)

$$A = \int_0^{.94194408} (e^{-x^2}) - (1 - \cos x) dx$$

$$A \approx .5907 \text{ units}^2$$

Work for problem 1(b)



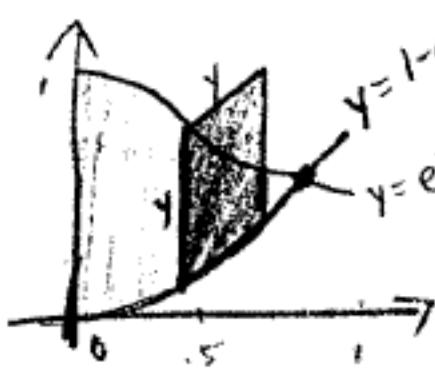
$$V = \pi \int_0^{.94194408} R^2(x) - r^2(x) dx$$

$$V = \pi \int_0^{.94194408} (e^{-x^2})^2 - (1 - \cos x)^2 dx$$

$$V \approx 1.7466 \text{ units}^3$$

Continue problem 1 on page 5.

Work for problem 1(c)



$$V = \int [e^{-x^2} - (1 - \cos x)]^2 dx$$

 R_2

$$y = e^{-x^2} - (1 - \cos x)$$

$$y^2 = [e^{-x^2} - (1 - \cos x)]^2$$

$$V \approx .4611 \text{ units}^3$$

1

1

1

1

1

1

1

1

1

1

CALCULUS AB
SECTION II, Part A

Time—45 minutes

Number of problems—3

T₁

A graphing calculator is required for some problems or parts of problems.

Work for problem 1(a)

$$A = \int_0^{.9419} e^{-x^2} - (1 - \cos x) = \boxed{.591}$$

To find the right hand limit of integration I graphed the two functions and then used the intersect function on my calculator.

Work for problem 1(b)

$$V = \pi \int_0^{.9419} (e^{-x^2})^2 - (1 - \cos x)^2 = \boxed{.556\pi \text{ or } 1.75}$$

Continue problem 1 on page 5.

Work for problem 1(c)

$$v = \int_0^{.9419} (e^{-x^2} - (1 - \cos x))^2 dx = \boxed{.4223}$$

$$A = s^2$$
$$s = e^{-x^2} - (1 - \cos x)$$

T₂

CALCULUS BC
SECTION II, Part A
Time—45 minutes
Number of problems—3

W₁

A graphing calculator is required for some problems or parts of problems.

Work for problem 1(a)

$$A = \int_0^1 e^{-x^2} - (1 - \cos x) dx$$

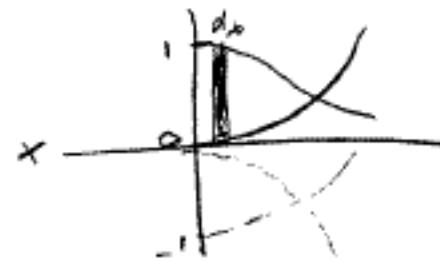
$$A = 0.58829 \text{ u}^2$$

Work for problem 1(b)

revolution about x-axis

$$V = \pi \int_0^1 [e^{-x^2} - (1 - \cos x)]^2 dx$$

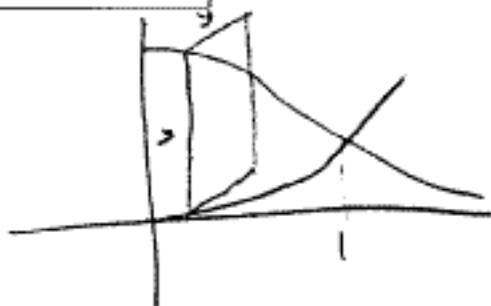
$$V = 1.44899 \text{ u}^3$$



Continue problem 1 on page 5.

1 1 1 1 1 1 1 1 1 1

Work for problem 1(c)



$$V = \int_0^1 [e^{-x^2} - (1 - \cos x)]^2 dx$$

$$V = 0.46123 \text{ u}^3$$

W₂

GO ON TO THE NEXT PAGE.