Definite integral

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Look at three or four or twenty my quizzes and then fill in my questionnaire please!

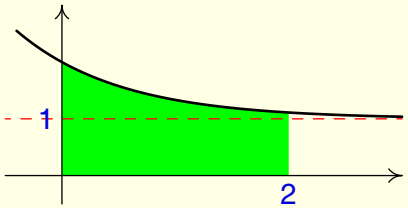
To create your own test from based on this one you will need free AcroTEXeDucation bundle, the TEX source attached here and to follow instruction on home site.

ROBERT MAŘÍK

Definite integral

file int-urc.tex

Quiz The function on the picture is the function $y = e^x$ reflected about the y-axis and moved by a unit above. (In notation of this document the function e^x can be written as `exp(x)`, or `e^(x)`.) The green region correponds to the interval $x \in [0, 2]$.



1. Write an analytical formula for the function. $y =$?

2. Express the area of the green region as the definite integral.

$$S = \int_{\square}^{\square} \square \, dx$$?

3. Complete the following formula. This formula can be used later for integration.

$$\int e^{-x} dx = \square + C$$?

4. Integrate and use the Newton–Leibniz formula.

$$S = \left[\square \right]_{\square}^{\square}$$?

5. Substitute the limits and evaluate the integral. $S =$?

6. Write the volume of the of the solid of revolution formed by revolving the green region about the x-axis as a definite integral.

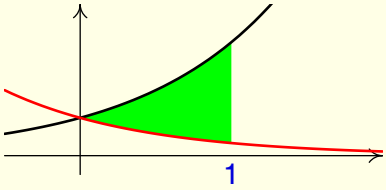
$V = \pi \int_{\square}^{\square} \square \, dx$?

7. Simplifying and integrating we get

$V = \pi \left[\square \right]_{\square}^{\square}$?

8. Find the volume. $V =$ $\square \pi$?

Quiz The functions on the picture are $y = e^x$ and $y = e^{-x}$ (In notation of this document we can write the function e^x as `exp(x)` or `e^(x)` and the function e^{-x} as `exp(-x)` or `e^(-x)`.) The green region correponds to $x \in [0, 1]$.



1. The black curve is $y =$ [ ] ?

2. The red curve is $y =$ [ ] ?

3. Write the area of the green region as a definite integral.

$$S = \int_{\square}^{\square} \square \, dx$$?

4. Integrate

$$S = \left[\square \right]_{\square}^{\square}$$?

5. Substitute limits and evaluate $S =$ [ ] ?

6. Write the volume of the solid of revolution which can be obtained by revolving the green region about the x-axis as a definite integral.

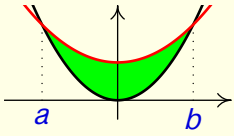
$V = \pi \int_{\square}^{\square} \square \, dx$?

7. Simplify and integrate.

$V = \pi \left[\square \right]_{\square}^{\square}$?

8. Find the volume. $V =$ $\square \pi$?

Quiz The functions on the picture are $y = x^2$ and $y = \frac{x^2}{2} + 2$ (In the notation of this document you can write something like `y=x^2` and `y=x^2/2+2`).



1. The black curve is: $y =$ [ ] ?

2. The red curve is: $y =$ [ ] ?

3. Find the intercepts of both curves: $a =$ [ ] $b =$ [ ] ?

4. Write the area of the green region as a definite integral.

$$S = \int_{\square}^{\square} \square \, dx$$?

5. The function inside integral is a polynomial. Find the coefficinets of this polynomial.

$$S = \int_{\square}^{\square} \left(\square\, x^2 + \square \right) dx$$?

6. Integrate and use the Newton–Leibniz formula.

$$S = \left[\square \right]_{\square}^{\square} = \square$$?

7. Write the volume of the solid obtained by a revolution of the shaded region about the x-axis as a definite integral.

$V = \pi \int_{\square}^{\square} \square \, dx$?

8. The function in the integral is a polynomial. Find the coefficients of the polynomial (complete the pattern by numbers).

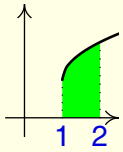
$V = \pi \int_{\square}^{\square} \left(\square x^4 + \square x^2 + \square \right) dx$?

9. Integrate and use the Newton–Leibniz formula.

$V = \pi \left[\square \right]_{\square}^{\square}$?

10. Evaluate the integral. $V = \square \pi$?

Quiz The graph of the picture is the curve $y = \sqrt{x}$ shifted by unit to the right and above. (In notation of this document write the fucntion $\sqrt{x}$ as `sqrt(x)` or `x^(1/2)`.)



1. Analytical formula for the function: $y =$?

2. Write the area of the colored region as an integral

$$S = \int_{\square}^{\square} \square \, dx$$?

3. For integration we use the formula (complete)

$$\int \sqrt{x}dx = \int x^{\frac{1}{2}}dx = \square + C$$?

4. Find the indefinite integral

$$S = \left[\square \right]_{\square}^{\square}$$?

5. Evaluate the integral: $S =$?

6. Write the volume of the corresponding solid of revolution as a definite integral

$V = \pi \int_{\square}^{\square} \square \, dx$?

7. Simplify and integrate

$V = \pi \left[\square \right]_{\square}^{\square}$?

8. Evaluate the volume $V =$ $\square \pi$?