

INTRODUCTION TO CALCULUS

MATH 1A

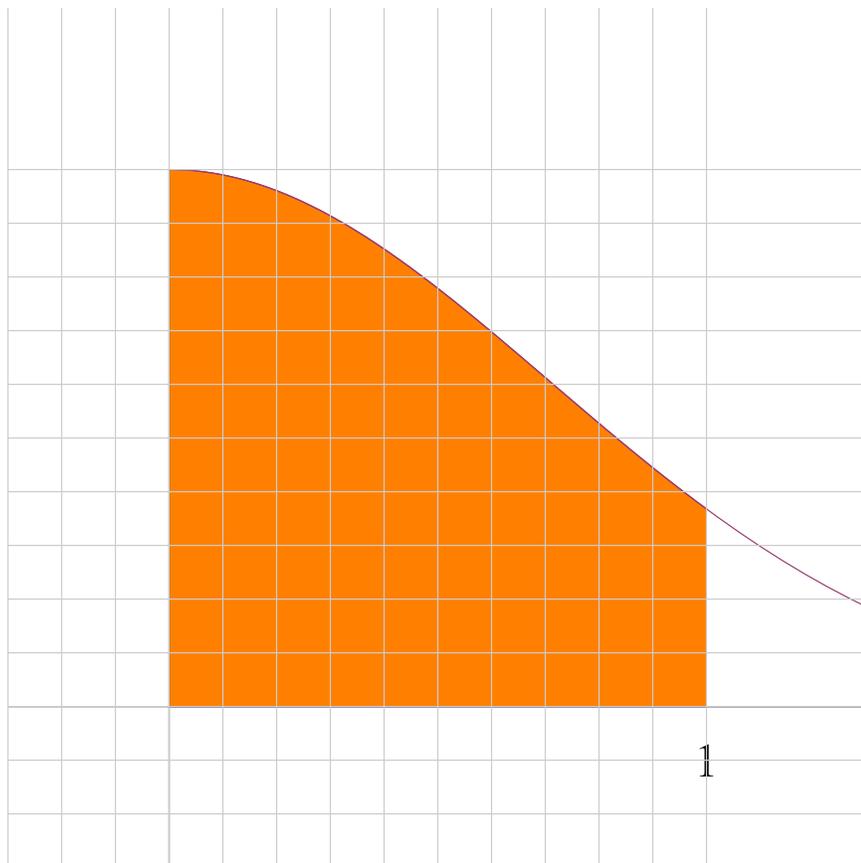
UNIT 17: WORKSHEET

Integrals

1: The following picture shows the graph of \exp^{-x^2} from 0 to 1. You also see a grid of width $h = 1/10$. Estimate the area

$$\int_0^1 e^{-x^2} dx$$

by estimating the Riemann sum.



9.1. In the following, you can use that if $f = \frac{d}{dx}F(x)$, then

$$\int_a^b f(x) dx = F(b) - F(a) .$$

2: $\int_0^2 x^5 dx$.

3: $\int_1^3 1 + x - x^4 dx$.

4: $\int_{-1}^1 x(1 - x) dx$.

5: $\int_0^1 e^x dx$.

6: $\int_1^2 \frac{1}{x} dx$

7: $\int_0^1 \frac{1}{1+x^2} dx$

8: $\int_0^1 \frac{1}{\sqrt{1-x^2}} dx$

A challenge: (we will learn how to do that better soon)

9: $\int_1^e \frac{\log(x)}{x} dx$