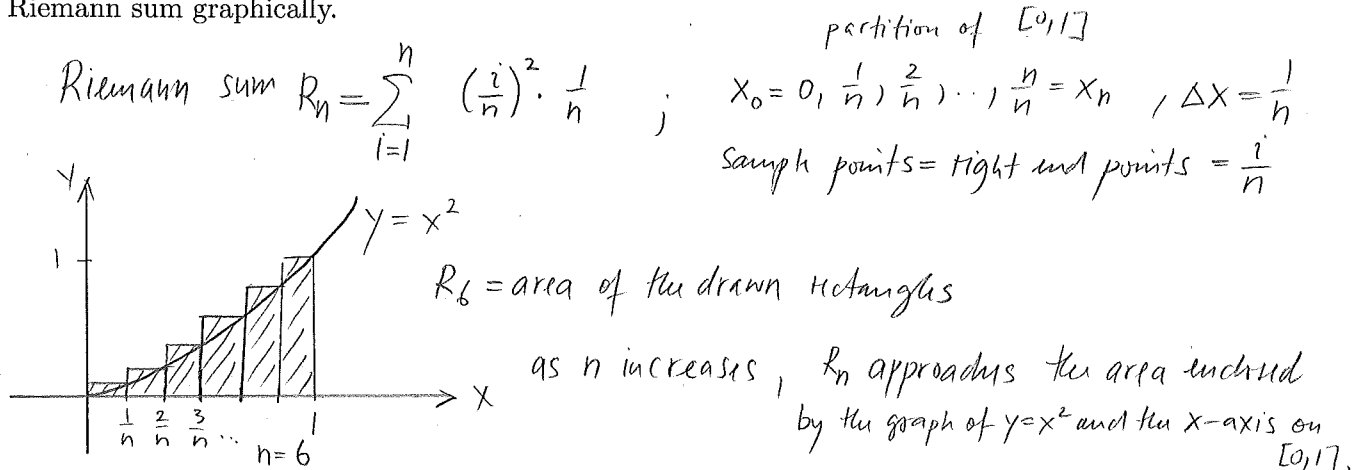


Quiz 8Name: MEExplain your solution process clearly.
Write legible.1. [4 points] Write down a Riemann sum for $f(x) = x^2$ on $[0, 1]$. Illustrate the meaning of your Riemann sum graphically.2. [2 points] Find the indefinite integral of $y^2 \sqrt{2+3y^3}$.

$$u = 2+3y^3 \Rightarrow du = 9y^2 dy$$

$$\Rightarrow \int y^2 \sqrt{2+3y^3} dy = \frac{1}{9} \int u^{\frac{1}{2}} du = \frac{2}{27} u^{\frac{3}{2}} + C = \frac{2}{27} (2+3y^3)^{\frac{3}{2}} + C$$

3. [2 points] Evaluate $\int_0^1 e^{-5-x} dx$.

$$u = -5-x$$

$$\Rightarrow du = -dx$$

$$u(0) = -5$$

$$u(1) = -6$$

$$= -\int_{-5}^{-6} e^u du = -e^u \Big|_{-5}^{-6} = \frac{e^{-5} - e^{-6}}{1}$$

4. [2 points] True or false? If it is true, explain why, if it is false, give an example that disproves the statement.

If $a > 0$ and $b > 0$, then $\ln(a+b) = \ln(a) + \ln(b)$.FALSE : $a=1, b=1 \Rightarrow \ln(a+b) = \ln(2) > 0 = \ln(1) + \ln(1)$

↑

because $\ln(x)$ is strictly increasing and $\ln(1) = 0$