

(1) $\int_{x=0}^{x=2} \frac{dx}{x^2 + 4}$

(2) $\int_{x=2}^{x=3} \frac{dx}{x^2 - 1}$

(3) $\int_{x=3}^{x=4} \frac{dx}{x\sqrt{x^2 - 4}}$

(4) $\int_{x=1}^{x=6} \frac{dx}{x\sqrt{x+3}}$

(5) $\int_{t=0}^{t=1} \frac{dt}{1 + e^{-2t}}$

(6) $\int_{x=0}^{x=1} e^{-\sqrt{x}} dx$ suggestion: let $x = u^2$

(7) $\int_{x=0}^{x=1} \frac{x dx}{x^4 + 1}$ suggestion: let $x^2 = u$

(8) $\int_{x=0}^{x=\pi^2} \cos \sqrt{x} dx$ suggestion: let $x = u^2$

(9) $\int_{t=0}^{t=1} \frac{e^{2t} dt}{1 + e^t}$ suggestion: let $x = e^t$

(10) Calculate the area inside the circle $x^2 + y^2 = 100$, and above the line $y = 6$.