Problems From Anton's Multi-Variable Calculus

1. $\int_0^1\int_0^2 (x+3)\,dy\,dx$

2. $\int_2^4\int_0^1 x^2 y\,dx\,dy$

3. $\int_0^{\ln 3}\int_0^{\ln 2} e^{x+y}\,dy\,dx$

4. $\int_{-1}^{0}\int_{2}^{5} dx\,dy$

5. $\int_0^1\int_0^1 \frac{x}{(xy+1)^2}\,dy\,dx$

Express the integral as an equivalent integral with the order of integration reversed.

6. $\int_0^2\int_0^{\sqrt{x}} f(x,y)\,dy\,dx$

7. $\int_0^2\int_1^{e^y} f(x,y)\,dx\,dy$

8. $\int_0^1\int_{\sin^{-1} y}^{\frac{\pi}{2}} f(x,y)\,dx\,dy$

Evaluate the integral by first reversing the order of integration

9. $\int_0^1\int_{4x}^4 e^{-y^2}\,dy\,dx$

10, 11, 12

$\int_0^1\int_{x^2}^x xy^2\,dy\,dx$

$\int_0^3\int_0^{\sqrt{9-y^2}} y\,dx\,dy$

$\int_{\sqrt{\pi}}^{\sqrt{2\pi}}\int_0^{x^3} \sin\left(\frac{y}{x}\right)\,dy\,dx$