

Example Questions for Multiple Integrals

NO.

DATE

1. Determine $\int_0^1 \int_{x^3}^{x^2} (x^3 - xy) dy dx$

Ans: $\frac{1}{336}$

2. Determine $\int_{-1}^1 \int_0^{1-x} (2x+1) dy dx$

Ans: $\frac{2}{3}$

3. Find $\int_{\frac{1}{e}}^{\ln 2} \int_e^2 dx dy$

Ans: $\ln 4 - 4 + e$

4. Determine $\int_{-1}^0 \int_{-1}^2 \int_1^2 6xy^2z^3 dx dy dz$

Ans: $-\frac{27}{4}$

5. Determine $\int_0^1 \int_0^x \int_0^{x-y} x dz dy dx$

Ans: $\frac{1}{8}$

6. Determine $\int_0^1 \int_{x^2}^x \int_0^{xy} dz dy dx$

Ans: $\frac{1}{24}$

7. Determine $\int_0^2 \int_0^2 e^{-(x+y)} dx dy$

Ans: $e^{-6} - e^{-3} - e^{-2} + e^{-1}$

8. Determine $\int_0^4 \int_{y/2}^3 xy dx dy$

Ans: 8

9. Determine $\int_0^1 \int_{\sqrt{x}}^{x^2} 7(x^2 + 2xy - 3y^2) dy dx$

Ans: $\frac{1}{30}$

10. Determine $\int_0^1 \int_1^{\frac{x}{y^2}} e^{x/y^2} dy dx$

Ans: $e - 2e^{\frac{1}{2}} + 1$

11. Determine $\iint \frac{x}{y} e^{x/y} dA$

where $0 \leq x \leq 1$ and $1 \leq y \leq 2$

Ans: $-\frac{1}{y^2} e^{\frac{1}{y^2}}$