

## Multiple Integrals

## Double

1. 
$$\int_{-2}^1 \int_0^{\sqrt{4-y^2}} xy^2 dx dy$$

2. 
$$\int_0^9 \int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{-r^2} r dr d\theta$$

3. 
$$\int_0^2 \int_{\frac{1}{2}}^1 x^2 y dx dy$$

4. 
$$\int_0^1 \int_0^1 xy dx dy$$

5. 
$$\int_0^3 \int_0^2 3x^2 y^3 dx dy$$

6. 
$$\int_0^4 \int_1^5 (y^2 + 3x^2) dx dy$$

7. 
$$\int_1^2 \int_0^1 x^2 y dx dy$$

8. 
$$\int_0^4 \int_0^4 e^{(4x+5y)} dx dy$$

9. 
$$\int_0^{2\pi} \int_0^{\sqrt{5}} \sqrt{4+r^2} r dr d\theta$$

10. 
$$\int_0^{\frac{\pi}{2}} \int_0^{1+\cos(\theta)} \sin(\theta) r dr d\theta$$

**Answers****Multiple Integrals****Double**

1.  $\frac{27}{10}$

2. 0

3.  $\frac{2}{5}$

4.  $\frac{1}{4}$

5. 162

6.  $\frac{1744}{3}$

7.  $\frac{1}{2}$

8.  $\frac{e^{36} - e^{16} - e^{20} + 1}{20}$

9.  $\frac{38\pi}{3}$

10.  $\frac{5}{4}$