9. $\iint_R \sqrt{2}\, dA \quad R = \{(x,y) \mid x \in [2,6] \wedge y \in [-1,5]\}$

$\int_2^6 \int_{-1}^5 \sqrt{2}\, dy\, dx = \int_2^6 [\sqrt{2}\, y]_{-1}^5\, dx = \int_2^6 6\sqrt{2}\, dx =$

$6\sqrt{2}\, x \Big]_2^6 =$

Heigth $= \sqrt{2}$ Length $= 6-2 = 4$ width $= 5+1 = 6$

$6\sqrt{2}\,(6-2) =$

$V = 4 \times 6 \times \sqrt{2} = 24\sqrt{2}$

$\boxed{24\sqrt{2}}$

The given integral represents volume of a cuboid

13. $f(x,y) = x + 3x^2y^2$

$\int_0^2 f(x,y)\, dx = \int_0^2 x + 3x^2y^2\, dx = \left[\frac{1}{2}x^2 + x^3y^2\right]_0^2 =$

$\frac{4}{2} + 8y^2 - 0 = \boxed{2 + 8y^2}$

$\int_0^3 f(x,y)\, dy = \int_0^3 x + 3x^2y^2\, dy = \left[xy + y^3x^2\right]_0^3 = 3x + 27x^2 - 0$

$= \boxed{3x + 27x^2}$

17. $\int_0^1 \int_1^2 (x + e^{-y})\, dx\, dy = \int_0^1 \left[\frac{1}{2}x^2 + e^{-y}x\right]_1^2 dy$

$= \int_0^1 2 + 2e^{-y} - \frac{1}{2} - e^{-y}\, dy = \int_0^1 \frac{3}{2} + e^{-y}\, dy = \left[\frac{3}{2}y - e^{-y}\right]_0^1$

$= \frac{3}{2} - e^{-1} - 0 + 1$

$\boxed{\frac{5}{2} - e^{-1}}$