2.28

1. Evaluate the double integral.

$$\iint_R \sqrt{2}dA, \quad R = \{(x,y)|2 \le x \le 6, -1 \le y \le 5\}$$

$$\iint_R (2x+1)dA, \quad R = \{(x,y)|0 \le x \le 2, 0 \le y \le 4\}$$

2. Calculate the iterated integral.

$$\int_0^1 \int_1^2 (x + e^{-y})dxdy$$

3. Sketch the region of integration and change the order of integration.

$$\int_1^2 \int_0^{lnx} f(x,y)dydx$$

4. Evaluate the double integral.

$$\iint_D (x^2 + 2y)dA, \quad D \text{ is bounded by } y = x, \, y = x^3, \, x \ge 0$$

5. Use polar coordinates to find the volume of the given solid.

Under the cone $z = \sqrt{x^2 + y^2}$ and above the disk $1 \le x^2 + y^2 \le 25$

6. Evaluate the iterated integral by converting to polar coordinates.

$$\int_0^2 \int_0^{\sqrt{2x-x^2}} \sqrt{x^2 + y^2}dydx$$