

## 16. Többváltozós függvények integrálszámítása

Határozza meg az  $f$  függvény kettős integrálját a megadott tartományon!

$$1, f(x, y) = (y - x + 3)^{-2} \quad D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq 1\}$$

$$2, f(x, y) = (x - y + 4)^{-2} \quad D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq 1\}$$

$$3, f(x, y) = \frac{1}{\sqrt{x + y^2}} \quad D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq 1\}$$

$$4, f(x, y) = y\sqrt{x} \quad D = \{(x, y) \mid 1 \leq x \leq 4, 1 \leq y \leq 3\}$$

$$5, f(x, y) = x\sqrt{y} \quad D = \{(x, y) \mid 1 \leq x \leq 3, 1 \leq y \leq 4\}$$

$$6, f(x, y) = (4x - 3y)^3 \quad D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq 2\}$$

$$7, f(x, y) = e^{3x+4y} \quad D = \{(x, y) \mid 0 \leq x \leq \ln 2, 0 \leq y \leq \ln 3\}$$

$$8, f(x, y) = y \cdot \sin(x + y) \quad D = \left\{ (x, y) \mid y \leq x \leq 3y, 0 \leq y \leq \frac{\pi}{2} \right\}$$

$$9, f(x, y) = x \cdot \cos(x + y) \quad D = \left\{ (x, y) \mid x \leq y \leq 2x, 0 \leq x \leq \frac{\pi}{2} \right\}$$

$$10, f(x, y) = \frac{e^x}{y^2} \quad D = \left\{ (x, y) \mid 0 < x < 1, \frac{1}{x^2} < y < \frac{1}{x} \right\}$$

$$11, f(x, y) = 2xy \quad D = \{(x, y) \mid 0 \leq x \leq 1, x^2 \leq y \leq \sqrt{x}\}$$

$$12, f(x, y) = 2 \cdot \cos x - 2y \quad D = \left\{ (x, y) \mid 0 \leq x \leq \frac{\pi}{3}, 0 \leq y \leq \cos x \right\}$$

$$13, f(x, y) = 2 \cdot \cos y - 2x \quad D = \left\{ (x, y) \mid 0 \leq x \leq \cos y, 0 \leq y \leq \frac{\pi}{3} \right\}$$

$$14, f(x, y) = \frac{y}{x} \quad D = \{(x, y) \mid y \leq x \leq y^2, 1 \leq y \leq e\}$$

$$15, f(x, y) = \frac{x}{y} \quad D = \{(x, y) \mid 1 \leq x \leq e, x \leq y \leq x^2\}$$

$$16, f(x, y) = x + y \quad D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq \sqrt{x}\}$$

$$17, f(x, y) = \cos\sqrt{x^2 + y^2} \quad D = \{(x, y) \mid \pi^2 \leq x^2 + y^2 \leq 4\pi^2\}$$