

16. Többváltozós függvények integrálszámítása

Határozza meg az f függvény kettős integrálját a megadott tartományon!

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| 1, $f(x, y) = (y - x + 3)^{-2}$ | $D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq 1\}$ |
| 2, $f(x, y) = (x - y + 4)^{-2}$ | $D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq 1\}$ |
| 3, $f(x, y) = \frac{1}{\sqrt{x + y^2}}$ | $D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq 1\}$ |
| 4, $f(x, y) = y\sqrt{x}$ | $D = \{(x, y) \mid 1 \leq x \leq 4, 1 \leq y \leq 3\}$ |
| 5, $f(x, y) = x\sqrt{y}$ | $D = \{(x, y) \mid 1 \leq x \leq 3, 1 \leq y \leq 4\}$ |
| 6, $f(x, y) = (4x - 3y)^3$ | $D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq 2\}$ |
| 7, $f(x, y) = e^{3x+4y}$ | $D = \{(x, y) \mid 0 \leq x \leq \ln 2, 0 \leq y \leq \ln 3\}$ |
| 8, $f(x, y) = y \cdot \sin(x + y)$ | $D = \left\{ (x, y) \mid y \leq x \leq 3y, 0 \leq y \leq \frac{\pi}{2} \right\}$ |
| 9, $f(x, y) = x \cdot \cos(x + y)$ | $D = \left\{ (x, y) \mid x \leq y \leq 2x, 0 \leq x \leq \frac{\pi}{2} \right\}$ |
| 10, $f(x, y) = \frac{e^x}{y^2}$ | $D = \left\{ (x, y) \mid 0 < x < 1, \frac{1}{x^2} < y < \frac{1}{x} \right\}$ |
| 11, $f(x, y) = 2xy$ | $D = \{(x, y) \mid 0 \leq x \leq 1, x^2 \leq y \leq \sqrt{x}\}$ |
| 12, $f(x, y) = 2 \cdot \cos x - 2y$ | $D = \left\{ (x, y) \mid 0 \leq x \leq \frac{\pi}{3}, 0 \leq y \leq \cos x \right\}$ |
| 13, $f(x, y) = 2 \cdot \cos y - 2x$ | $D = \left\{ (x, y) \mid 0 \leq x \leq \cos y, 0 \leq y \leq \frac{\pi}{3} \right\}$ |
| 14, $f(x, y) = \frac{y}{x}$ | $D = \{(x, y) \mid y \leq x \leq y^2, 1 \leq y \leq e\}$ |
| 15, $f(x, y) = \frac{x}{y}$ | $D = \{(x, y) \mid 1 \leq x \leq e, x \leq y \leq x^2\}$ |
| 16, $f(x, y) = x + y$ | $D = \{(x, y) \mid 0 \leq x \leq 1, 0 \leq y \leq \sqrt{x}\}$ |
| 17, $f(x, y) = \cos\sqrt{x^2 + y^2}$ | $D = \{(x, y) \mid \pi^2 \leq x^2 + y^2 \leq 4\pi^2\}$ |