Rješenja 4. domaće zadaće iz Matematike 3E

1. $I = 1.$

2. $I = -2.$

3. $I = \int_{-1}^{\frac{-\sqrt{2}}{2}} dx \int_{-\sqrt{1-x^2}}^{\sqrt{1-x^2}} f(x,y)\, dy + \int_{-\frac{\sqrt{2}}{2}}^{\frac{\sqrt{2}}{2}} dx \int_{x}^{\sqrt{1-x^2}} f(x,y) dy$

4. $I = \int_{-2}^{0} dx \int_{-2x-2}^{x+4} f(x,y) dy + \int_{0}^{3} dx \int_{1-\sqrt{9-x^2}}^{1+\sqrt{9-x^2}} f(x,y) dy$

5. $I = \int_{-2}^{0} dx \int_{-2x-2}^{x+4} f(x,y) dy$

6. $I = \int_{1}^{3} du \int_{-1}^{1} 0.5 f(\frac{u+v}{2}, \frac{u-v}{2}) dv$

7. $I = \int_{1}^{4} du \int_{1}^{3} \widetilde{f}(u,v) \frac{1}{2\sqrt{v^2+4u^2}}\, dv$

8. $I = \int_{\frac{\pi}{4}}^{\frac{3\pi}{4}} d\varphi \int_{0}^{3\sqrt{2}} f(r\cos\varphi, r\sin\varphi) r\, dr$

9. $I = \int_{\frac{\pi}{3}}^{\frac{2\pi}{3}} d\varphi \int_{\frac{\sqrt{3}}{2\sin\varphi}}^{1} f(r\cos\varphi, r\sin\varphi) r\, dr$

10. $I = \int_{\frac{-\pi}{3}}^{\frac{\pi}{3}} d\varphi \int_{\frac{1}{2\cos\varphi}}^{1} f(r\cos\varphi, r\sin\varphi) r\, dr$

11. $I = \frac{633}{20}$

12. $I = \frac{\pi}{8}$

13. $I = -\frac{16}{5}$

14. $I = \frac{3\pi}{2}$

15. $I = \frac{4\pi}{3}$

16. $I = \pi$

17. $P = 1.$

18. $P = \frac{3\pi}{2}.$

19. $V = \dfrac{8\sqrt{6}\pi}{3}$.

20. $V = \dfrac{\pi}{3}(a^3 - b^3) - R^2\pi(a - b)$.