

Matematika 2 – Julski ispitni rok – I kolokvijum, grupa A – rešenja

1. $I = \frac{2\sqrt{13}}{13} \ln \left| \frac{\operatorname{tg}^2(3x) + 3 - \sqrt{13}}{\operatorname{tg}^2(3x) + 3 + \sqrt{13}} \right| + C$.

2. $V = 4\pi^2 - \frac{16\pi}{3}$.

3. $l = 1 + \ln \frac{5}{3}$.

4. $dz = \left(\frac{1}{2} \sin 1 + e \sin 1 + e \cos 1 \right) dx + \left(\frac{1}{2} \sin 1 + e \sin 1 + e \cos 1 \right) dy$.

5. a) $\frac{1}{6}$; b) $-x \cos \frac{x}{2} + 2 \sin \frac{x}{2} + C$; c) $2 \ln \frac{3}{2}$.

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1. $I = 4 - \frac{\pi}{3} - \frac{\sqrt{3}}{2}$.

2. $I = \frac{5}{3}$.

3. $\frac{11\pi}{12}$.

4. $m = 12\pi$.

5. a) $\frac{15}{2}$; b) $I = \frac{2}{3}(145\sqrt{145} - 1)$; c) $P = 16\pi$.