

ΕΚΠΑ. Τμήμα Φυσικής. Ακαδ. έτος 2020-2021  
ΜΜΦ Ι - Απαντήσεις άσκησης 7 τρίτου φύλλου

$$\int_{-\infty}^{\infty} \frac{dx}{x^2 + 4} = \frac{\pi}{2}$$

$$\int_{-\infty}^{\infty} \frac{x \sin x}{x^2 + 4} dx = \frac{\pi}{e^2}$$

$$\int_{-\infty}^{\infty} \frac{dx}{16 + x^4} = \frac{\pi\sqrt{2}}{16}$$

$$\int_0^{2\pi} \frac{\sin^2 \theta}{5 - 3 \sin \theta} d\theta = \frac{5\pi}{18}$$

$$\int_0^{2\pi} \frac{d\theta}{1 - 2a \cos \theta + a^2} = \frac{2\pi}{1 - a^2} \quad (|a| < 1)$$

$$\int_0^{2\pi} \frac{d\theta}{1 + \cos^2 \theta} = \sqrt{2}\pi$$

$$\int_{-\infty}^{\infty} \frac{x}{(x^2 + x + 1)^2} dx = -\frac{2}{9}\pi\sqrt{3}$$

$$\int_{-\infty}^{\infty} \frac{\cos x}{x^4 + 2x^2 + 1} dx = \frac{\pi}{e}$$

$$\int_0^{+\infty} \frac{x^2 + 2}{(x^2 + 1)^2} dx = \frac{3\pi}{4}$$