B. Vyšetřete spojitost funkce $F(a)$:

1. $\int_0^\infty \frac{\exp(-ax)}{1+x^3}\,dx, \quad a \geq 0$ 2. $\int_0^\infty \frac{x}{1+x^a}\,dx, \quad a > 2$

3. $\int_0^\pi \frac{\sin x}{x^a(\pi - x)^a}\,dx, \quad a < 2$ 4. $\int_{-1}^1 \sqrt{x^2+a^2}, \quad a \in R$

5. $\int_0^\infty \exp(-ax)\frac{\sin x}{x}\,dx, \quad a > 0$ 6. $\int_1^\infty \frac{\sin\left(\frac{1}{x}\right)}{x(a+x)^2}, \quad a > -1$

C. Derivováním podle parametru spočtěte integrály:

1. $\int_0^\infty \frac{1-\exp(-ax^2)}{x^2\exp(x^2)}\,dx$ 2. $\int_0^1 \frac{x^a-1}{\ln x}\,dx$

3. $\int_0^\infty \exp(-x)\frac{\sin(ax)}{x}\,dx$ 4. $\int_0^\infty \exp(-x)\frac{1-\cos(ax)}{x}\,dx$

5. $\int_0^\infty \frac{\operatorname{arctg}(ax)}{x(1+x^2)}\,dx$ $*$6. $\int_0^\infty \exp\left\{-x^2-\frac{a^2}{x^2}\right\}dx$

7. $\int_0^{\pi/2} \frac{\ln(1+a\sin x)}{\sin x}\,dx$ 8. $\int_0^\pi \frac{\ln(1+\cos x)}{\cos x}\,dx$