

Odpovědi ke cvičení

$$\boxed{3} \quad (\operatorname{sh} x)' = \operatorname{ch} x, (\operatorname{ch} x)' = \operatorname{sh} x, (\operatorname{th} x)' = \frac{1}{\operatorname{ch}^2 x} = 1 - \operatorname{th}^2 x.$$

$$\boxed{5} \quad \operatorname{ar sh} x = \ln(x + \sqrt{1+x^2}); \operatorname{ar ch} x = \ln(x + \sqrt{x^2-1}); \operatorname{ar th} x = \frac{1}{2} \ln \frac{1+u}{1-u}.$$

$$\boxed{6} \quad (\operatorname{ar sh} x)' = \frac{1}{\sqrt{1+x^2}}; (\operatorname{ar ch} x)' = \frac{1}{\sqrt{x^2-1}}; (\operatorname{ar th} x)' = \frac{1}{1-x^2}.$$

$$\boxed{9} \quad \text{Ad 1. } \frac{1}{3} \left[\frac{1}{x-1} - \frac{1}{x+2} \right].$$

$$\text{Ad 2. } \frac{3/20}{x-2} + \frac{1/4}{x+2} - \frac{2/5}{x+3}.$$

$$\text{Ad 3. } \frac{16/25}{x+2} - \frac{4/5}{(x+2)^2} + \frac{9/25}{x-3}.$$

$$\text{Ad 4. } \frac{1/108}{x+3} - \frac{1/108}{x-3} + \frac{1/36}{(x-3)^2} - \frac{1/36}{(x+3)^2}.$$

$$\text{Ad 5. } \frac{1/5}{x^2+4} - \frac{1/5}{x^2+9}.$$

$$\text{Ad 6. } \frac{1/3}{x-1} - \frac{1}{3} \frac{x+2}{x^2+x+1}.$$

$$\text{Ad 7. } \frac{1}{3} \left(\frac{1}{(x-1)^2} - \frac{1}{x-1} + \frac{x+1}{x^2+x+1} \right).$$

$$\text{Ad 8. } \frac{1}{9} \left(\frac{1}{x-1} - \frac{x+2}{x^2+x+1} \right) - \frac{1}{3} \cdot \frac{x+2}{(x^2+x+1)^2}.$$

$$\text{Ad 9. } \frac{1}{3} \left(\frac{1}{x+1} - \frac{x-2}{x^2-x+1} \right).$$

$$\text{Ad 10. } \frac{\frac{x}{2\sqrt{2}} + \frac{1}{2}}{x^2 + \sqrt{2}x + 1} - \frac{\frac{x}{2\sqrt{2}} - \frac{1}{2}}{x^2 - \sqrt{2}x + 1}.$$