

Gyakorló feladatok megoldásai - 2.

MAM112M

1.

$$\begin{array}{ll}
 \text{(a)} & 3 \frac{z}{z-1} - 5 \frac{z}{(z-1)^2} \quad \text{(b)} \quad \frac{z^2 - 3z \cos 2}{z^2 - 6z \cos 2 + 9} \\
 \text{(c)} & \frac{-z^2 \sin 3 - z \sin 5}{z^2 - 2z \cos 2 + 1} \quad \text{(d)} \quad \frac{z \operatorname{sh} 4}{z^2 - 2z \operatorname{ch} 4 + 1} \\
 \text{(e)} & \frac{z(z+1)}{(z-1)^3} \quad \text{(f)} \quad \frac{z(z^2 + 4z + 1)}{(z-1)^4} \\
 \text{(g)} & \frac{25z}{(z-25)^2} \quad \text{(h)} \quad \frac{2z^2}{(z^2-1)^2}
 \end{array}$$

2.

$$\begin{array}{ll}
 \text{(a)} & (-1)^n + 4^n \quad \text{(b)} \quad 2^{n+1} + 1 \\
 \text{(c)} & 3n + 2 \quad \text{(d)} \quad \frac{\sqrt{2}}{2} \sin\left(\frac{\pi}{4}n\right) \\
 \text{(e)} & \cos\left(\frac{\pi}{3}n\right) \quad \text{(f)} \quad (2n+1)3^n \\
 \text{(g)} & 5\delta_n^{(4)} + 3\delta_n^{(2)} \quad \text{(h)} \quad 3^{n-1}n + 2 \cdot 3^n
 \end{array}$$

3.

$$\begin{array}{ll}
 \text{(a)} & -3^n + 4^n \quad \text{(b)} \quad (-4)^n + 2 \\
 \text{(c)} & n5^n \quad \text{(d)} \quad 3 \cdot 2^{n-1} + (3n+3) \cdot 2^{n-1} \\
 \text{(e)} & 2(-3)^n + 4(-3)^{n-3} H_n^{(3)} \quad \text{(f)} \quad -2 \cdot 3^n + 3 \cdot 2^n \\
 \text{(g)} & 4(-2)^n + 3^n \quad \text{(h)} \quad 2 \cdot 3^n \\
 \text{(i)} & 3 \quad \text{(j)} \quad x_n = 2 \cdot 4^n, \quad y_n = 3 \cdot 4^n \\
 \text{(k)} & x_n = \sin\left(\frac{\pi}{2}n\right), \quad y_n = \cos\left(\frac{\pi}{2}n\right)
 \end{array}$$