

7 גרז'ס

1. $\lim_{x \rightarrow +0} x^{\frac{1}{3}} Y_0(x), \lim_{x \rightarrow +0} x^{\frac{1}{3}} Y_0(x)$ $\alpha \in \mathbb{R}$

$\lim_{x \rightarrow +0} x^3 Y_{2.5}(x), \lim_{x \rightarrow +0} x^{-3} J_{2.5}(x)$

$\lim_{x \rightarrow \infty} Y_k(x) x^{\frac{1}{2}}, \lim_{x \rightarrow \infty} J_k(x) x^{\frac{1}{2}}$ $k \in \mathbb{N}$

2. להצביע על העיוג שבה הצורה סטנדרטית ולגדוק
האם הן יכולות

$$\begin{cases} u'' + 4u = \cos x \\ u(0) = 0 \quad u'(\frac{\pi}{2}) = 0 \end{cases}$$

$$\begin{cases} u'' - u = 1 \\ u(0) = 0 \quad u(1) = 0 \end{cases}$$

$$\begin{cases} u'' + u = \sin x \\ u'(0) = 0 \quad u'(\frac{\pi}{2}) = 0 \end{cases}$$

$$\begin{cases} u'' + u = f(x) \\ u'(0) + u(1) = 0 \quad u'(1) = 0 \end{cases}$$

$$\begin{cases} u'' + 4u = f(x) \\ u(0) = 0 \quad u'(\frac{\pi}{2}) = 0 \end{cases}$$

$$\begin{cases} (\cos x \cdot u')' + u = f(x) \\ u(0) + u'(0) = 0, u(\pi) + u'(\pi) = 0 \end{cases}$$

$$\begin{cases} u'' - u = e^x \\ u'(0) + u(0) = 0, u'(3) + u(3) = 0 \end{cases}$$

3. להעביר לצורה סטנדרטית

$$\begin{cases} u'' + \frac{2}{x+1} u' + u = x \\ u(0) = 0 \quad u'(1) = 0 \end{cases}$$

$$\begin{cases} [(x^2+1)u']' + \cos x \cdot u = f(x) \\ u'(0) - u(0) = 1 \quad u'(1) = 2 \end{cases}$$

$$\begin{cases} u''(x^2+1) + 2x u' + x u = \sin x \\ u'(0) = 0 \quad u(1) = 0 \end{cases}$$