Tag Mat C2 Tang Yuxuan nb 76 akul

A12, A11 freigegeben

−1 P

wegen abgabeformat.(6-1

A 12 a i) $\cos(3x) = \cos^3(x)$ $\sin(3x) = -\sin^3(x)$: i

ii) $\sin(3x) = \sin(x)\cos^2(x) - \sin^3(x) + 2\sin(x)\cos^2(x)$

$\cos(3x) = \cos^3(x) - \sin^2(x) - 2\sin^2(x)\cos(x)$

b) $\sin(x)(\cos^2(x) - \sin^2(x) + 2\cos^2(x)) =$

$\sin(x)(1 - \sin^2(x)) - \sin^2(x) + 2 - 2\sin^2(x) =$ ...

$\sin(x)(3 - 4\sin^2(x)) = \sin(3x)$

A 11 i) $\limsup_k \sqrt[k]{\left|\frac{5^k}{k}\right|} = \frac{5}{1} \to R = \frac{1}{5}$ ✓ ✓

ii)

warum?

iii) $\limsup_k \sqrt[k]{|k!+2|} = \lim_{k\to\infty} \sqrt[k]{k!+2} = \infty \to R = 0$ ✓

iv) $y = x^4$

$\sqrt[k]{\frac{2^k}{k^2}} = \frac{2}{\sqrt[k]{k^2}} \xrightarrow{k\to\infty} 2$ ✓ $\Rightarrow$ Die gegebene Reihe (iv) hat den k Radius $\sqrt[4]{\frac{1}{2}}$ ✓

b) $R_y = \frac{1}{\limsup_k \sqrt[k]{3}\cdot\sqrt[k]{k} + 4\cdot\frac{1}{\sqrt[k]{k!}} + 1} = \frac{1}{2}$ ✓

($\sqrt[k]{3}\to 1$, $\sqrt[k]{k}\to 1$, $\frac{1}{\sqrt[k]{k!}}\to 0$)

$R_x = \frac{1}{\frac{1}{2}} - 3 = -1$??