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Jawab.

(1) $$\sum_{n=1}^{\infty} (-1)^n \frac{3^n}{2^n n^3}$$

$$a_n = (-1)^n 3^n / 2^n 3^n$$

$$= \left| \frac{a_n+1}{a_n} \right|$$

$$= \left| \frac{\dfrac{(-1)^{n+1}(3)^{n+1}}{(2)^{n+1}(n+1)^3}}{\dfrac{(-1)^n 3^n}{2^n 3^n}} \right|$$

$$= \frac{3^{n+1}}{2^{n+1}(n+1)^3} \cdot \frac{2^n 3^n}{3^n}$$

$$= \frac{6^n + 2^n + 1}{2 + n^3 + 3^n}$$

$$= \frac{1}{2} \; \frac{6^n + 2^n + 1}{n^3 + 3^n}$$

$$= \frac{1}{2} \cdot 1 = \frac{1}{2} < 1 \rightarrow \text{konvergen}$$

(2) $y = e^{-2x} \cos x$ hanya sampai turunan 5

$y = F(x) = e^{-2x} \cos x$

$= F(x) = F(0) + \frac{F'(0)}{1!} + \frac{F''(0)}{2!} \dots\dots$

$= F'(x) = e^{-2x} (\sin(x) + 2 \cos(x))$

$= F''(x) = e^{-2x} (4 \sin(x) + 3 \cos(x))$

$= F''' = e^{-2x} (11 \sin(x) + 2 \cos(x))$

$F^{IV} = e^{-2x} (24 \sin(x) + 6 \cos(x))$

$F'(x) = 1$

$F''(x) = -2$

$F'''(x) = 3$

$F^{IV}(x) = -2$

$F^{V}(x) = -6$

maclaurin :

$F(x) = f(0) + \frac{1}{1} x + \frac{(-2)}{2} x^2 + \frac{(3)}{6} x^3 + \frac{(-2)}{24} x^4 + \frac{(-6)}{120} x^5$

$= 0 + \frac{1}{1} x + \frac{1}{1} x^2 + \frac{1}{2} x^3 + \frac{1}{12} x^4 + \frac{1}{10} x^5$

$= x - \frac{x^2}{1} + \frac{x^3}{2} + \frac{x^4}{12} + \frac{x^5}{10}$

Dipindai dengan CamScanner

3 $\int_1^5 (4-x)\,dx$

$= \int_1^5 4 - x\,dx$

$= \int_1^5 4\,dx - \int_1^5 x\,dx$

$= 4\int_1^5 1\,dx - \int_1^5 x\,dx$

$= 4(5-1) - \int_1^5 x\,dx$

$= 4 \times 4 - \int_1^5 x\,dx$

$= 4 \times 4 - \left(\frac{5^2}{2} - \frac{1^2}{2}\right)$

$= 16 - \left(\frac{5^2}{2} - \frac{1^2}{2}\right)$

$= 16 - \frac{5^2 - 1^2}{2}$

$= 16 - \frac{25 - 1^2}{2}$

$= 16 - \frac{25 - 1}{2}$

$= 16 - \frac{24}{2}$

$= 4$