

Section 2 #1-11 odds



$x \dots$

$2 \dots$

$4 \dots$

$5 \dots$

$2 \dots$

$$e^x \approx \frac{x^5}{200} + \frac{x^4}{16} + \frac{x^3}{4} + \frac{x^2}{3} + x + 1$$

$$e^x \approx 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \frac{x^5}{5!} \dots \frac{x^n}{n!}$$

0 1 2 3 4 5

3

$$(7) (a) f(x) = \frac{5}{1-x} = \frac{5/2}{1-x/2}$$

$$2^2 + \frac{5}{4}x + \frac{5}{8}x^2 + \frac{5}{16}x^3$$

$$P_3(x) = \frac{5}{2} \left(1 + \left(\frac{1}{2}x\right) + \left(\frac{1}{2}x\right)^2 + \left(\frac{1}{2}x\right)^3 \right)$$

$$P_3(x) = \frac{5}{2} \left(1 + \frac{1}{2}x + \frac{1}{4}x^2 + \frac{1}{8}x^3 \right)$$

$$P_3(x) = \frac{5}{2} + \frac{5}{4}x + \frac{5}{8}x^2 + \frac{5}{16}x^3$$

$$\begin{array}{r} \frac{5}{2}x + 0x^2 \\ - \frac{5}{2}x + \frac{5}{4}x^2 \\ \hline \end{array}$$

$$\begin{array}{r} \frac{5}{4}x^2 + 0x^3 \\ - \frac{5}{4}x^2 + \frac{5}{8}x^3 \\ \hline \frac{5}{8}x^3 \end{array}$$

$$(b) f(x) = \frac{3}{1-(-x^2)}$$

$$P_3(x) = 3(1 + (-x^2) + (-x^2)^2)$$

$$P_3(x) = 3 - 3x^2 + 3x^4$$

$$(c) f(x) = \frac{2x}{1+x^2} = \frac{2}{\frac{1}{x} - (-x)} = \frac{2x}{1-(-x^2)}$$

$$r = \frac{a}{2v + 2v(-v^2) + 2v(-v^2)^2 + 2v(-v^2)^3}$$

$$(9) \text{ (a) } f(x) = \ln(1+x^2)$$

$$\ln|1-x| = -x - \frac{x^2}{2} - \frac{x^3}{3} - \frac{x^4}{4} \dots$$

$$\ln(1-(-x^2)) = -(-x^2) - \frac{(-x^2)^2}{2} - \frac{(-x^2)^3}{3}$$