

9.3 $c=0$ $(x-0)$ $(x-0)^3$

(19) $f(x) = \sin x$ $x - \frac{x^3}{6}$

$f'(x) = \cos x$ 1

$f''(x) = -\sin x$ 0

$f'''(x) = -\cos x$ 0

$f^{(4)}(x) = \sin x$ 0

$f^{(5)}(x) = \cos x$ 0

$$\frac{f^{(n+1)}(z)}{(n+1)!} (x-c)^{n+1} < 5 \times 10^{-4}$$

$$\frac{1}{5!} (x-c)^5 < 5 \times 10^{-4}$$

$$5! \cdot \frac{1}{5!} (x)^5 < 5 \times 10^{-4} \cdot 5!$$

$$|x| < \sqrt[5]{5 \times 10^{-4} \cdot 5!}$$

(23) $e^x \approx 1 + x + (x^2/2)$ $|x| < .9$

$x-c$

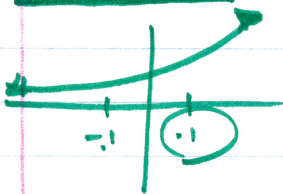
$f(x) = e^x$

$f'(x) = e^x$

$f''(x) = e^x$

$f'''(x) = e^x$ $[-.1, .1]$

$$\frac{e^{.1}}{3!} (.1)^3$$



(42) $f(x) = \cos x$ $(\pi)^n$

$f'(x) = -\sin x$ $n!$

$f''(x) = -\cos x$

$$\frac{1}{n!} (\pi)^n < .01$$

$$1 - \frac{x^2}{2} + \frac{x^4}{24} - \dots + \frac{(-1)^{n+1} x^{2n-2}}{(2n-2)!}$$