

pg 644: 19, 30, 44, 50, 51, 58; Actual textbook: pg 510: 20, 22

$$(19) P_4(x) = x + x^2 + \frac{x^3}{2} + \frac{x^4}{6}$$

$$(30) P_2(x) = -x^2 - 2x(x-x) + \frac{(x^2-2)(x-x)^2}{2}$$

$$(47) x \approx -6.795$$

$$(50) n=2$$

$$(51) n=5$$

$$(58) -0.180 \leq x \leq 0.220$$

$$(20) a) \left| \frac{(0.5)^4}{4!} \right| \approx 2.604 \times 10^{-4} \quad b) \left| R_2(0.5) \right| \leq \left| \frac{f^{(3)}(z) \cdot (0.5)^3}{3!} \right| = \frac{(0.5)^3}{3!} \approx 0.021$$

← max of f

$$(22) a) \left| \frac{(0.1)^3}{3!} \right| \approx 1.667 \times 10^{-4} \quad b) \left| R_1(0.1) \right| \leq \left| \frac{f^{(2)}(z) \cdot (0.1)^2}{2!} \right| = \frac{(0.1)^2}{2} = .005$$

← max of f

c) The line  $y=x$  is below  $y=\sin x$  for  $x < 0$ .