Alternating Estimation Theorem

- 1. $f(x) = x^{2/3}$ centered at x = 1
- a. Given the function, find the fourth order polynomial
- c. Use the alternate estimation theorem to determine the error bound $|f(x) P(x)| \le R$ at x = 1.2

2.
$$f(x) = x^{-2}$$
 centered at $x = 1$

- a. Given the function, find the fourth order polynomial
- c. Use the alternate estimation theorem to determine the error bound $|f(x) P(x)| \le R$ at x = 1.1

3.
$$f(x) = \frac{1}{1+x}$$
 centered at $x = 0$

- a. Given the function, find the fourth order polynomial
- c. Use the alternate estimation theorem to determine the error bound $|f(x) P(x)| \le R$ at x = -.1

4.
$$f(x) = \sin x$$
 centered at $x = 0$

- a. Given the function, find the fourth order polynomial
- c. Use the alternate estimation theorem to determine the error bound $|f(x) P(x)| \le R$ at x = -.1
- 5. $f(x) = \cos x$ centered at x = 0
- a. Given the function, find the fourth order polynomial
- c. Use the alternate estimation theorem to determine the error bound $|f(x) P(x)| \le R$ at x = .1
- 6. $f(x) = \ln(1+x)$ centered at x = 0
- a. Given the function, find the fourth order polynomial
- c. Use the alternate estimation theorem to determine the error bound $|f(x) P(x)| \le R$ at x = .1