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. $f(x) = \dfrac{1}{1+x}$ 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