

Maclaurin

Taken from Early Transcendental by James Stewart

Use your knowledge of a special Maclaurin Series to obtain the Power Series for the function given

1. $f(x) = \cos(\pi x)$

2. $f(x) = e^{\frac{-x}{2}}$

3. $f(x) = x \tan^{-1}(x)$

4. $f(x) = \sin(x^4)$

5. $f(x) = x^2 e^{-x}$

6. $f(x) = x \cos(2x)$

7. $f(x) = \ln(1 + x^3)$

8. $f(x) = x \ln(1 - x^2)$

Find the Taylor Polynomial of order n
centered at the given value of a

1. $f(x) = e^x$ order 4 centered at 3

2. $f(x) = \ln(x)$ order 3 centered at 2

3. $f(x) = \cos(x)$ order 4 centered at π

4. $f(x) = \sin(x)$ order 4 centered at $\pi/2$

5. $f(x) = \frac{1}{\sqrt{x}}$ order 3 centered at 9

3. $f(x) = x^{-2}$ order 3 centered at 1