

(11.10 & 11.11) Taylor Series & Taylor Polynomials

Full Name: \_\_\_\_\_

1. Find the power series representation for each function  $f$ .

(a) 
$$\sum_{n=0}^{\infty} \frac{(-16)^n x^{2n}}{(2n)!}$$

(b) 
$$\sum_{n=0}^{\infty} \frac{(-3)^n x^{n+1}}{n!}$$

2.  $T_0(x) = 3$

$\sqrt{10} \approx 3$

$T_1(x) = 3 + \frac{1}{6}(x - 9)$

$\sqrt{10} \approx 3.1667$

$T_2(x) = 3 + \frac{1}{6}(x - 9) - \frac{1}{216}(x - 9)^2$

$\sqrt{10} \approx 3.1620$

$T_3(x) = 3 + \frac{1}{6}(x - 9) - \frac{1}{216}(x - 9)^2 + \frac{1}{3888}(x - 9)^3$

$\sqrt{10} \approx 3.1623$

$T_4(x) = 3 + \frac{1}{6}(x - 9) - \frac{1}{216}(x - 9)^2 + \frac{1}{3888}(x - 9)^3 - \frac{5}{279936}(x - 9)^4$

$\sqrt{10} \approx 3.1623$

3. 21m