

Mathematics 248 Quiz 10 (Due 4/23/07)

1. Find a power series representation for $f(x) = xe^{-x^3}$.

2. Find an infinite sum that represents $\frac{1}{e}$.

3. Use power series to find the exact value of the following sums.

(a)
$$\sum_{n=0}^{\infty} \frac{2^n}{3^n n!}$$

(b)
$$1 - \frac{1}{2!} + \frac{1}{4!} - \frac{1}{6!} + \dots$$

4. (a) Find the equation of the circle with radius 2 and center at $(-1, 3)$.

(b) Find parametric equations for that same circle.

5. Find the center and radius of the ellipse with equation $x^2 + 2x + 3y^2 - 12y - 11 = 0$