**Power Series**

Find the radius and interval of convergence for each of the following series.

1. \[ \sum_{n=1}^{\infty} \frac{(4x-1)^n}{(2n)^n} \]

2. \[ \sum_{n=5}^{\infty} (n-3)!(x+8)^n \]

3. \[ \sum_{n=0}^{\infty} \frac{(2x+6)^n}{(-3)^{n-1}} \]

4. \[ \sum_{n=0}^{\infty} \frac{(x-1)^n}{2^{3n+1}(n+1)} \]

**Power Series and Functions**

Find a power series representation for each of the following.

5. \[ g(t) = \frac{4t}{7-\sqrt{t}} \]

6. \[ f(x) = \frac{x^2}{1+3x^4} \]

**Taylor Series**

7. Use a Taylor series derived in class to find a Taylor series for \( f(x) = x^2 \cos(4\sqrt{x}) \) about \( x = 0 \).

For problems 8 – 10 find a Taylor series for the given function about the given point.

8. \( g(x) = 3x^2 + 18x - 4 \) about \( x = -7 \).

9. \( f(x) = \ln(7 - 5x) \) about \( x = 0 \).

10. \( h(x) = \frac{4}{(1+2x)^2} \) about \( x = -4 \).