

## Section 4-15 : Power Series and Functions

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For problems 1 – 3 write the given function as a power series and give the interval of convergence.

1.  $f(x) = \frac{6}{1+7x^4}$

2.  $f(x) = \frac{x^3}{3-x^2}$

3.  $f(x) = \frac{3x^2}{5-2\sqrt[3]{x}}$

4. Give a power series representation for the derivative of the following function.

$$g(x) = \frac{5x}{1-3x^5}$$

5. Give a power series representation for the integral of the following function.

$$h(x) = \frac{x^4}{9+x^2}$$

