Math 2300-013: Quiz 8

Name: _____   Score: _____

1. Consider the power series

$$\sum_{n=1}^{\infty} \frac{(-3)^n}{\sqrt{n}} (5x - 1)^n$$

(i) (4 points) Find the interval of convergence of the series.

(ii) (1 point) What is the radius of convergence of this series?

2. (a) (3 points) Write down a power series that converges to

$$f(x) = \frac{x^7 - 1}{1 - 3x^2}.$$

(Hint: Modify the power series for $\frac{1}{1-x}$.)

(b) (2 points) What is the radius of convergence of this series? (Hint: Modify the interval of convergence of the power series for $\frac{1}{1-x}$.)