

MA114 Summer 2018
Worksheet 14 – Power Series Part 2 – 7/05/18

1. Using the fact that $\frac{-2}{3x^2 + 4x + 1} = \frac{1}{1+x} - \frac{3}{1+3x}$, find a power series expression for $\frac{1}{3x^2 + 4x + 1}$ around $x = 0$.

2. Use the same idea as above to give a series expression for $\ln(1+2x)$ given that $\int \frac{2 dx}{1+2x} = \ln(1+2x)$. You will want to manipulate the fraction $\frac{2}{1+2x} = \frac{2}{1-(-2x)}$ as above.

3. Write $(1+x^2)^{-2}$ as a power series. Hint: Use term-by-term differentiation.