Name _____ KEY _____

**Instructions:** Show all work.  Use exact answers unless otherwise asked to round.

1.  Write the given functions as a power series centered at $c$.

a.  $f(x) = \frac{3}{2x-1}, c = 2$

$$\frac{3}{2x-1} = \frac{-3}{1-2x} = \frac{-3}{1-2(x-2)-4} = \frac{-3}{-3-2(x-2)} \cdot \frac{-\frac{1}{3}}{-\frac{1}{3}} = \frac{1}{1+\frac{2}{3}(x-2)}$$

$$f(x) = \sum_{n=0}^{\infty} \left(-\frac{2}{3}\right)^n (x-2)^n$$

b.  $f(x) = \frac{2}{1-x^2}, c = 0$

$$f(x) = \sum_{n=0}^{\infty} 2x^{2n}$$