Practice Problems for 10.1,10.2

1. Is the sequence convergent or divergent? If it converges, then calculate the limit.

a. $a_n = \sqrt{\frac{2n}{n+1}}$

b. $a_n = (\frac{n}{n+1})^n$

c. (hint: challenging) $a_0 = 1$, $a_{n+1} = \sqrt{5a_n}$

2. Is this series convergent? $\Sigma_{n=10}^{\infty} \cos \frac{1}{n}$

3. Find the value of x for which the series converges. For those x, find the sum of the series

$$\Sigma_{n=0}^{\infty} 2^n x^n$$