Name: Section: 11 12 13

1. Evaluate the following improper integrals.

   (i) $\displaystyle\int_0^{\pi/2} \sec x \; dx$

   (ii) $\displaystyle\int_0^{\infty} \frac{1}{x^2+3x+2} \; dx$

2. Write the first four terms of the following sequences and find the limit of each sequence.

(i) $\left\{\dfrac{2\sqrt{n}-1}{3+5n}\right\}_{n=0}^{\infty}$

(ii) $\left\{\left(1-\dfrac{3}{n}\right)^{n}\right\}_{n=1}^{\infty}$

(iii) $\left\{\dfrac{(-1)^{n}+2n}{n}\right\}_{n=1}^{\infty}$

(iv) $\left\{\left(-\dfrac{1}{2}\right)^{n}\right\}_{n=2}^{\infty}$