Series Convergence Worksheet

On a separate sheet paper, determine whether each series converges or diverges. You must justify each answer.

(1) $\displaystyle\sum_{n=1}^{\infty} \frac{11}{n^5}$

(2) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{2n^{1/2}+1}$

(3) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{2n^{1/2}-1}$

(4) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{n+3}$

(5) $\displaystyle\sum_{n=1}^{\infty} \frac{n}{n+3}$

(6) $\displaystyle\sum_{n=1}^{\infty} \frac{3+2^{-n}}{\sqrt{n}}$

(7) $\displaystyle\sum_{n=1}^{\infty} \frac{3n^{5/2}}{\sqrt{n^5+n^2+1}}$