For the week of September 29-October 03

1) Determine, with justification, if the following integral converge or diverge.

(a) $\int_0^\infty \sin x \, dx$

(b) $\int_1^\infty \frac{dx}{x\sqrt[3]{x^2+1}}$

(c) $\int_0^\infty \frac{1}{x^2-3x+2} \, dx$

(d) $\int_1^\infty \frac{x^2+5}{\sqrt{x^5-x^3}} \, dx$

(e) $\int_1^\infty \frac{1+e^{-x}}{\sqrt{x}} \, dx$

(f) $\int_1^\infty \frac{e^{-x}}{\sqrt{x}} \, dx$