MA114 Summer 2018
Worksheet 6a – Improper Integrals II – 6/18/18

1. Determine if the following integrals are proper or improper. Do not evaluate any of the integrals.

   (a) $\displaystyle\int_0^2 \frac{x\,dx}{x^2-5x+6}$

   (b) $\displaystyle\int_1^2 \frac{dx}{2x-1}$

   (c) $\displaystyle\int_1^2 \ln(t-1)\,dt$

   (d) $\displaystyle\int_{-\infty}^{\infty} \frac{\sin(x)}{1+x^2}\,dx$

2. Evaluate $\displaystyle\int_0^2 \frac{1}{\sqrt{x}}\,dx$.

3. Use the Comparison Theorem to determine whether the following integrals converge or diverge.

   (a) $\displaystyle\int_1^{\infty} \frac{2+e^{-x}}{x}\,dx$

   (b) $\displaystyle\int_1^{\infty} \frac{x+1}{\sqrt{x^6+x}}\,dx$