Key to Homework #3

20pts

1.6. #24
(not what the book asks for, but just take the limit for \( x \to \infty \) and \( x \to -\infty \)).

\[
\lim_{x \to \infty} \frac{2x^2+7x-15}{3x^2-14x+15} = \frac{2}{3} \quad \text{by case 6}
\]

Since the numerator and the denominator have the same degree,

\[
\lim_{x \to -\infty} \frac{2x^2+7x-15}{3x^2-14x+15} = \frac{2}{3} \quad \text{same reason.}
\]

26pts

2.2. #7

The function is discontinuous at

- \( x = 1 \), since \( f(x) \) is not defined
- \( x = 3 \), since right and left limits do not match (\( \lim_{x \to 3^-} f(x) = \infty \), \( \lim_{x \to 3^+} f(x) = \text{some } \# \))
- \( x = 4 \), since right and left limits do not match (two different \#'s)