II. 6

1. Questions 1-5 in this section want us to answer whether something happens "eventually" as $x \to \infty$.

2. Saying that something is true for $x > a$ means that there is some stage "a" after which it becomes true as $x \to \infty$.

3. \[
\frac{x}{x^2 + 2x} > \frac{1}{x}
\]

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\]

Since we only care about "eventually" assume $x > 0$

\[
x \cdot x > (x^2 + 2x) \cdot 1
\]

Since $x > 0$, signs don't change direction since we only multiplied by positive things (since $x > 0$)

\[
x^2 > x^2 + 2x
\]

\[
0 > 2x
\]

\[
0 > x
\]

Contradicts that $x > 0$, so no such "a" is possible.