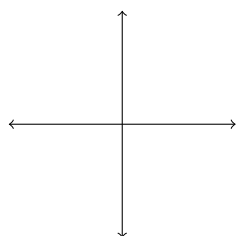


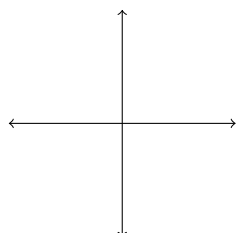
# WORKSHEET: SECTION 2-6 DAY ONE (LIMITS AT INFINITY)

1. Sketch graphs of the following functions and then determine the limits at infinity below:



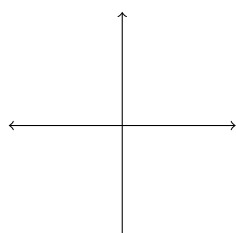
$$\lim_{x \rightarrow -\infty} e^x =$$

$$\lim_{x \rightarrow \infty} e^x =$$



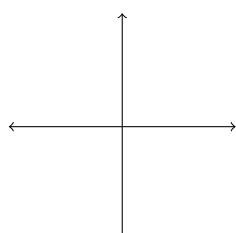
$$\lim_{x \rightarrow -\infty} \frac{1}{x} =$$

$$\lim_{x \rightarrow \infty} \frac{1}{x} =$$



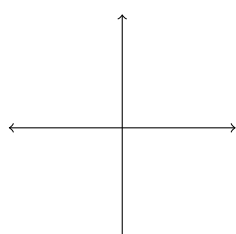
$$\lim_{x \rightarrow -\infty} \frac{1}{x^2} =$$

$$\lim_{x \rightarrow \infty} \frac{1}{x^2} =$$



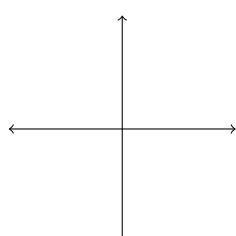
$$\lim_{x \rightarrow -\infty} \frac{1}{x^{2k}} =$$

$$\lim_{x \rightarrow \infty} \frac{1}{x^{2k}} =$$



$$\lim_{x \rightarrow -\infty} \frac{1}{x^{2k+1}} =$$

$$\lim_{x \rightarrow \infty} \frac{1}{x^{2k+1}} =$$



$$\lim_{x \rightarrow -\infty} \arctan(x) =$$

$$\lim_{x \rightarrow \infty} \arctan(x) =$$

2. **Algebraically** find the limits below and draw a picture demonstrating what this limit indicates about the graph of the function.

$$\lim_{x \rightarrow \infty} \frac{3x^2 + 4x}{2x^2 + 7}$$

$$\lim_{x \rightarrow -\infty} \frac{3x^2 + 4x}{2x^4 + 7}$$

3. Find all vertical and horizontal asymptotes in the graph of the function  $g(s) = \frac{\sqrt{3s^2 + 1}}{2s + 1}$ .