

Day 4 HW: More Limits Selected Solutions

1. Because the degree of the numerator is larger than the degree of the denominator when x gets really big the numerator will increase more quickly than the denominator causing the function to increase without bound.
2. Because the degree of the denominator is larger than the degree of the numerator when x gets really big the denominator will increase more quickly than the numerator causing the function to get closer and closer to 0.
3. As x gets really big the terms in the numerator and denominator (in this case $3x^2$ and x^2) begin to dominate the function and the -5 in the denominator becomes insignificant. So, $h(x)$ begins to look like $\frac{3x^2}{x^2}$ which is equal to 3.

4a. $\frac{1}{2}$

4b. -25

4f. -1

4h. Infinity

5a.

- | | | | |
|-----------------------------|---|--|----|
| • The degree of the top: | 3 | • The leading coefficient of the top | 24 |
| • The degree of the bottom: | 3 | • The leading coefficient of the bottom. | 48 |

5b. $\frac{1}{2}$

6. Big Suggestion: Sketch graphs of the functions to find the limits

7a. 2

7b. $\frac{3}{4}$

7c. 7