

**Warning: there are 5 problems: 2 problems on the front and 3 problems on the back. Turn your paper over.**

NAME: \_\_\_\_\_

There are 5 problems.  
Each problem is worth 2 points.

\_\_\_\_\_

10

please check the box of your section

Section 005 (WF 8:00 am)

or

Section 006 (WF 9:05 am)

**INSTRUCTIONS:** Indicate your reasoning. Put answers in box and show work below the box.

1.

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

2.

$$\lim_{n \rightarrow \infty} (17)^n =$$

3.

$$\lim_{n \rightarrow \infty} \frac{5n^3 + 6n + 3}{17n^3 + 9n^2 + 4} =$$

4.

$$\lim_{n \rightarrow \infty} \frac{n^3}{e^n} =$$

5.

$$\lim_{n \rightarrow \infty} \frac{\sqrt[3]{n^2 + 5}}{\sqrt[6]{64n^4 + 17n}} =$$

hint:

$$\frac{\sqrt[3]{n^2 + 5}}{\sqrt[6]{64n^4 + 17n}} = \frac{(n^2 + 5)^{\frac{1}{3}}}{(64n^4 + 17n)^{\frac{1}{6}}} = \frac{(n^2 + 5)^{\frac{2}{6}}}{(64n^4 + 17n)^{\frac{1}{6}}} = \frac{[(n^2 + 5)^2]^{\frac{1}{6}}}{(64n^4 + 17n)^{\frac{1}{6}}}$$