

# Problems for Lecture 10

February 6, 2015

1. Let  $a$ ,  $b$ , and  $c$  be any real numbers. Use the limit definition to prove that

$$\lim_{x \rightarrow c} (ax + b) = ac + b.$$

2. Use the limit definition to prove that

$$\lim_{x \rightarrow \pi} \lceil x \rceil = 4.$$

Hint: can you choose  $\delta$  so that  $\lceil x \rceil - 4 = 0$ ? Be clear with your argument. Recall that  $\lceil x \rceil$  denotes the ceiling function where we round up.