

## 232 Quiz 4

September 30, 2011

Name:                     \* Key \*Section:                     Name:                     

Work in groups of THREE on each problem; do not split up problems or tasks. You must discuss each problem together and agree on a final solution. Hand in one quiz per group.

You may use your hand-written Notebooks but no other materials and no technology at all. Please keep your discussions quiet so as not to disturb or inform other groups.

1. Find  $\lim_{x \rightarrow \infty} \frac{\tan^{-1} x}{\sec^{-1} x}$ . Justify your answer.

INVERSE IS NOT RECIPROCAL

$$\lim_{x \rightarrow \infty} \frac{\tan^{-1} x}{\sec^{-1} x} \rightarrow \frac{\pi/2}{\pi/2} = \boxed{1}.$$

2. Given that  $\sum_{k=1}^4 a_k = 5$ ,  $\sum_{k=0}^4 b_k = 11$ , and  $a_0 = 3$ , find the value of  $\sum_{k=0}^4 (2a_k + 3b_k)$ . Please show your reasoning in order, not in a big jumble.

$$\begin{aligned} \sum_{k=0}^4 (2a_k + 3b_k) &= 2 \sum_{k=0}^4 a_k + 3 \sum_{k=0}^4 b_k \\ &= 2a_0 + 2 \sum_{k=1}^4 a_k + 3 \sum_{k=0}^4 b_k \\ &= 2(3) + 2(5) + 3(11) \\ &= \boxed{49}. \end{aligned}$$