

Student ID:

MATH102, Section 1  
Spring 2018, Term 172

Quiz 5  
Version A

Student Name:

Serial Number: \_\_\_\_\_

**Instructions:** Show Your Work!

1. (6 pts) Find the sum of

(a)  $\sum_{n=1}^{\infty} [\tan^{-1}(n+1) - \tan^{-1}(n)]$ .

(b)  $1 - e^{-1} + e^{-2} - e^{-3} + e^{-4} - \dots$

2. (4 pts) Determine whether the sequence is convergent or divergent. If it is convergent, find its limit.

(a)  $\left\{ \left( 1 + \frac{3}{n} \right)^{4n} \right\}$ , (b)  $\left\{ \frac{(-10)^n}{n!} \right\}$

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