

LAST NAME:

FIRST NAME:

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**MATH 009C - Summer 2017**

Quiz 4: July 18, 2017

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1. Determine whether the sequence converges or diverges. If it converges, find its limit.

(a)  $a_n = n^2 e^{-n}$

(b)  $a_n = n \sin\left(\frac{1}{n}\right)$

(c)  $a_n = \frac{n!}{2^n}$

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Please, show all work.

2. Find the general term  $a_n$  of the sequence:

$$(a) \quad \left\{1, \frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{9}, \dots\right\}$$

$$(b) \quad \{2, 7, 12, 17\}$$

$$(c) \quad \left\{1, -\frac{2}{3}, \frac{4}{9}, -\frac{8}{27}, \dots\right\}$$

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Please, show all work.