

Course

Student ID

Test

MATH 1C

12345678

QUIZ 1

Question

2a

2b

2c

2d

Points

MAX: 2

MAX: 1.5

MAX: 1

MAX: 2

0.5

2

Question

2e

3a

3b

3c

Points

MAX: 2.5

MAX: 5

MAX: 10.5

MAX: 7.5

3

Total

MAX: 32

Self Assessment [3 POINTS]

Based on your work on the prerequisites review packet and your performance on this test,
what prerequisite skills should you improve on?

WRITING LIMITS PROPERLY (REALLY JUST WRITING

MATH PROPERLY, NOT USING SHORTHAND +

HANDWAVING)

CHECKING INEQUALITIES

SHOWING ALL STEPS

[2][a] $a_2 = \frac{1}{2}a_1 - \frac{1}{2} = \frac{1}{4}$
 $a_3 = \frac{1}{2}a_2 - \frac{1}{4} = -\frac{1}{8}$ ①
 $a_4 = \frac{1}{2}a_3 - \frac{1}{8} = -\frac{3}{16}$
 $a_5 = \frac{1}{2}a_4 - \frac{1}{16} = -\frac{5}{32}$
 *

$-\frac{1}{2}$ NOT IN { } FORMAT

[b] $\frac{3}{2} > \frac{1}{4} > -\frac{1}{8}$ DECREASING
 *

[c] $S_1 = \frac{3}{2} = 1\frac{1}{2}$
 $S_2 = \frac{3}{2} + \frac{1}{4} = \frac{7}{4} = 1\frac{3}{4}$
 $S_3 = \frac{7}{4} - \frac{1}{8} = \frac{13}{8} = 1\frac{5}{8}$ ①
 $S_4 = \frac{13}{8} - \frac{3}{16} = \frac{23}{16} = 1\frac{7}{16}$
 $S_5 = \frac{23}{16} - \frac{5}{32} = \frac{41}{32} = 1\frac{9}{32}$

$-\frac{1}{2}$ NOT IN { }
 FORMAT

[d] $S_n = 1 + \frac{2n-1}{2^n}$ ②

[e] $\lim_{n \rightarrow \infty} \left(1 + \frac{2n-1}{2^n}\right) = \lim_{n \rightarrow \infty} \left(1 + \frac{2}{2^n \ln 2}\right) = 1$ $\frac{1}{2}$
 *

$$[3][a] \lim_{n \rightarrow \infty} \frac{1}{\tan^{-1} e^n} = \frac{1}{\tan^{-1} \infty} = \frac{1}{\frac{\pi}{2}} \quad \text{①}$$

$$\sum_{n=1}^{\infty} \frac{1}{\tan^{-1} e^n} \text{ DIV} \quad \text{①}$$

$$[b] \quad \text{①} \quad 0 < \frac{\sin^2 n}{8^n - 4} < \frac{1}{8^n}$$

$$\text{①} \quad \sum_{n=1}^{\infty} \frac{1}{8^n} \text{ CONV} \quad (\text{GEOMETRIC}) \quad \text{①}$$

$$\text{①} \quad \sum_{n=1}^{\infty} \frac{\sin^2 n}{8^n - 4} \text{ CONV} \quad (\text{COMPARISON}) \quad \text{①}$$

$$[c] \quad \text{①} \quad \frac{\sqrt{1000n^6 + n^7}}{n^4 - n^2 - 6} \geq \frac{\sqrt{n^7}}{n^4} = \frac{1}{n^{\frac{1}{2}}}$$

$$\text{①} \quad \sum_{n=1}^{\infty} \frac{1}{n^{\frac{1}{2}}} \text{ DIV} \quad (\text{p-SERIES}, p = \frac{1}{2}) \quad \text{①}$$

$$\sum_{n=1}^{\infty} \frac{\sqrt{1000n^6 + n^7}}{n^4 - n^2 - 6} \text{ DIV} \quad (\text{COMPARISON}) \quad \text{①}$$