

Sequence & Series Review #1

1.) a.) arithmetic b.) neither c.) geometric

2a.) $t_n = -5n + 22$
 $t_{50} = -228$

c.) $t_n = -81 \left(-\frac{1}{3}\right)^{n-1}$

$$t_{50} = 3.385 \times 10^{-22}$$

3.) $S_{128} = \frac{128(105 + 994)}{2} = 70,336$

(there are 128 3 digit integers that are multiples of 7)
($105 + 112 + 119 + 126 + \dots + 994$)

4.) $d = 8$ $t_1 = -105$

$$t_{88} = -105 + (88-1)(8) = 591$$

5.) $-2, 2, 2, 2$

b.) $r = 2$ or -2 $t_{12} = \frac{1}{2}(2)^{12-1} = 1024$

or
 $t_{12} = \frac{1}{2}(-2)^{12-1} = -1024$

7.) a.) No Sum ($r = \frac{3}{2}$)
Diverges

b.) Converges $r = \frac{1}{4}$

$$S = \frac{24}{1 - \frac{1}{4}} = 19.2$$

8.) $c - -8 = 4 - c$
 $c = -2$

9.) $310 = n(4 + (4 + (n-1)6))$

$$620 = 6n^2 + 2n$$

$$n = 10$$

$$0 = 6n^2 + 2n - 620$$

$$10.) \quad -60 = \frac{3(1 - (-3)^n)}{1 - -3}$$

$$-240 = 3(1 - (-3)^n)$$

$$-80 = 1 - (-3)^n$$

$$-81 = -(-3)^n$$

$$81 = (-3)^n$$

$$n = 4$$

$$12a.) \quad \frac{14}{31}$$

$$b.) \quad \text{DNE } (\infty)$$

$$c.) \quad 0$$

$$d.) \quad 0$$

$$e.) \quad 0$$

$$f.) \quad 0$$

$$g.) \quad 2$$