

### Lesson 5.3.3

**5-117.** No; the 5<sup>th</sup> term is 160, and the 6<sup>th</sup> term is 320. Justifications vary.

**5-118.** Yes,  $x \approx 5.322$ .

**5-119. See below:**

a. Sequence 1: 10, 14, 18, 22, add 4,  $t(n) = 4n - 2$ ; Sequence 2: 0, -12, -24, -36, subtract 12,  $t(n) = -12n + 36$ ; Sequence 3: 9, 13, 17, 21, add 4,  $t(n) = 4n - 3$

b. Yes, Sequence 1: 18, 54, 162, 486, multiply by 3,  $t(n) = \frac{2}{3}(3)^n$ ; Sequence 2: 6, 3, 1.5, 0.75, multiply by  $\frac{1}{2}$ ,  $t(n) = 48(\frac{1}{2})^n$ ; Sequence 3: 25, 125, 625, 3125, multiply by 5,  $t(n) = \frac{1}{5}(5)^n$

c. Answers vary, but the point is to have students create their own equation and write terms that correspond to it.

**5-120. See below:**

a. -4

b. 6

c. 8

d. 1040

e.  $x = -3, 0, 2$

f.  $x^3 - 5x - 3$

**5-121. See below:**

a.  $y = 23500(0.85)^x$ , worth \$2052.82

b.  $y = 14365112(1.12)^x$ , population 138,570,081

**5-122.**  $t(n) = -188n + 2560$ ; 1620

**5-123. See below:**

a. all numbers

b. 1, 2, 3, ...

c.  $x \neq 0$

d. 1, 2, 3, 4, ...