BECA / Huson / Algebra 2

Lesson #1.5 Homework SOLUTIONS

1. A. 6, 12, 18, 24 (3) $a(n) = a(n-1) + 6$
   B. 2, 14, 98, 686 (1) $a(n) = 7 \cdot a(n-1)$
   C. 160, 80, 40, 20 (2) $b(n) = \frac{1}{2} b(n-1)$

2. 1. 7, 4, 1, −2, −5
   2. 2, 3, 5, 9, 17
   3. 3, 30, 300, 3000, 30,000
   4. 1, 2, 6, 24, 120

3. 1. $f(n) = 2 + 2(n-1)$
   2. $f(n) = 5 + 2(n-1)$
   3. $f(n) = 50 - 25(n-1)$
   4. $f(n) = \frac{1}{3}\left(\frac{1}{3}\right)^{n-1}$

4. 1. $f(x) = 2x - 7$
   $f(3) = -1$
   $f(2) = -3$
   $f(1) = -5$
   $f(0) = -7$
   $f(-1) = -9$
   2. $g(x) = 5^x$
   $g(3) = 125$
   $g(2) = 25$
   $g(1) = 5$
   $g(0) = 1$
   $g(-1) = \frac{1}{5}$

Lesson #5 (Cont)

5. 1.

n	A(n)	B(n)
0	-1	1/2
1	2	1
2	5	2
3	8	4
4	11	8
5	14	16
6	17	32

2. add three
3. multiply by two
4. Sequence B, because of the multiplication, "×2"

6.

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Lesson 4.6 Homework Solutions

1. 1. $a(1) = 2$
$a(n) = a(n-1) + 3$

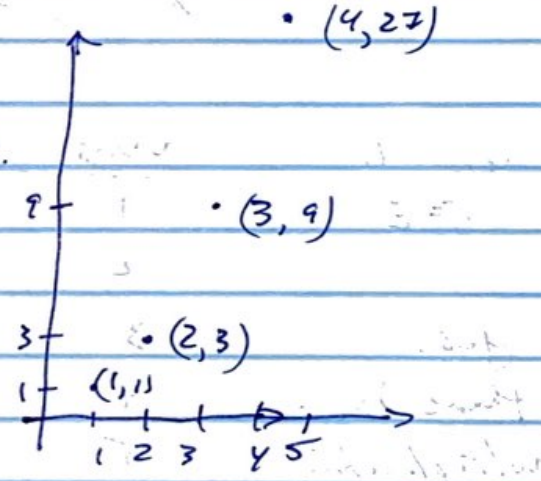
2.

n	$a(n)$
1	2
2	5
3	8
4	11
5	14
6	17

$a(6) = 17$

2. 1. $g(1) = 1$
$g(n) = g(n-1) \times 3$

2.



3. multiply 1 by 3 29 times

3. A. 3, 15, 75 3. $c(n) = 5 \cdot c(n-1)$
B. 18, 6, 2, 2/3 1. $a(n) = \frac{1}{3}(a(n-1))$
C. 1, 2, 4, 7 4. $d(n) = d(n-1) + n - 1$
D. 17, 13, 9, 5 2. $b(n) = b(n-1) - 4$

Solutions (Cont)

4. 1. 1, 3, 9, 27, 81
   2. 1, −1, −3, −5, −7
   3. 1, 3, 7, 15, 31
   4. 1, 2, 5, 26, 677
   5. 1, 3, 7, 13, 21

5. 120, 60

   1. 120, 60, 0, −60
      $f(1) = 120$
      $f(n) = f(n-1) - 60 \quad n \geq 2$
   2. $f(1) = 120$
      $f(n) = f(n-1) * \frac{1}{2} \quad n \geq 2$

6. 1.

hours	P(n)
1	1,000,000
2	500,000
3	250,000
4	125,000
5	62,500
6	31,250

$r = \frac{1}{2}$

yes. there is a multiplication by $\frac{1}{2}$, the growth factor

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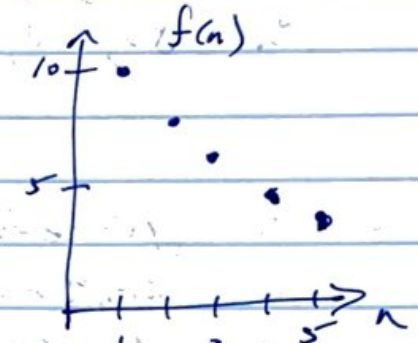
Lesson # 1.7 Homework Solutions

1. $f(1) = 10$, $f(n) = f(n-1) + 1.5$ for $n \geq 2$

1. arithmetic

2. 10, 8.5, 7, 5.5, 4

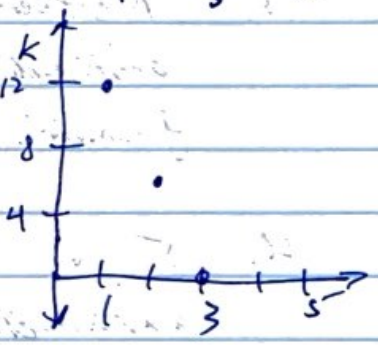
3.



2. 12, 6

$k(1) = 12$

$k(n) = k(n-1) - 6 \quad n \geq 2$

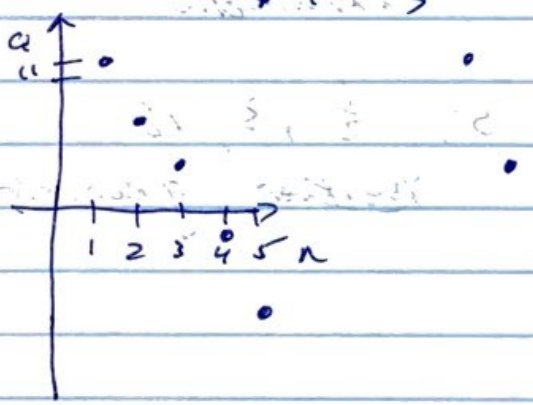


3. 11, 7

1. $a(1) = 11$

$a(n) = a(n-1) - 4$

2.



4. g: 80, 40

1. $g(1) = 80$

$g(n) = g(n-1) * \frac{1}{2}$

2.

n	g(n)
1	80
2	40
3	20
4	10
5	5
6	$2\frac{1}{2}$

3. multiply 80 by $\frac{1}{2}$ 99 times

Solutions (cont)

5. A. ~~2, 1, 2, 4, 8...~~ 3. 1, 3, 7, 15, 31

B. 2. 1, 2, 4, 8...

C. 80, 40, 20...

6. 1. geometric

2. arithmetic

3. Neither 4, 9, 16
arithmetic: 4, 9, 14
geometric: 4, 8, 16

4. 50, 60, 70
arithmetic

5. $\frac{1}{2}$, 3, 18
~~neither~~ geometric