Bell Ringer

Section 2.7

1. Describe the pattern in each sequence. What are the next two terms of each sequence?
   a. 4, 8, 12, 16, . . .
   b. 13, 8, 3, -2, . . .

2. Tell whether the sequence is arithmetic. If it is, what is the common difference?
   a. 3, 4, 6, 10, . . .
   b. -3, 1, 5, 9, . . .

3. You are studying a new plant food for a science experiment. The plant is 20 cm tall when the experiment begins and grows at a rate of 3.5 cm per week. What will the height of the plant be after 4 weeks?

4. An arithmetic sequence is represented by the recursive formula A(n) = A(n-1) + 7. If the first term of the sequence is 2, write the explicit formula.

5. Solve for t. $\frac{3t-4}{5} = 5$

Section 2.7

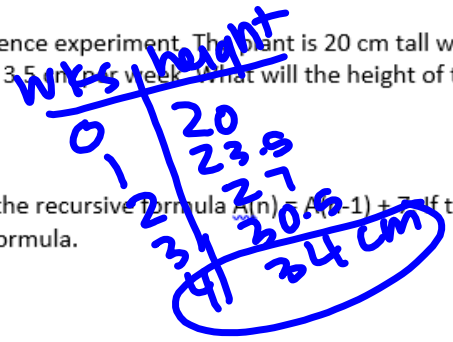
Bell Ringer Key

1. Describe the pattern in each sequence. What are the next two terms of each sequence?
   a. 4, 8, 12, 16, . . . The pattern is "add 4 to the previous number"; 20, 24
   b. 13, 8, 3, -2, . . . The pattern is "subtract 5 from the previous number"; -7, -12

2. Tell whether the sequence is arithmetic. If it is, what is the common difference?
   a. 3, 4, 6, 10, . . . Not arithmetic
   b. -3, 1, 5, 9, . . . Arithmetic; 4

3. You are studying a new plant food for a science experiment. The plant is 20 cm tall when the experiment begins and grows at a rate of 3.5 cm per week. What will the height of the plant be after 4 weeks?

   34 cm



4. An arithmetic sequence is represented by the recursive formula A(n) = A(n-1) + 7. If the first term of the sequence is 2, write the explicit formula.

   A(n) = 2 + (n – 1)7

5. Solve for t. $\frac{3t-4}{5} = 5$

   t = 29/3 or 9.7

3, 6, 9, 12, ...

Recursive

$A(1) = 3$

$A(n) = A(n-1) + 3$

Explicit

$A(n) = A(1) + (n-1)d$

$A(n) = A(1) + (n-1)3$

$A(30) = 3 + 29(3)$

n	A(n)
1	3 = 3
2	6 = 3 + 3
3	9 = 3 + 3 + 3
4	12 = 3 + 3 + 3 + 3
74	3 + 73(3)

$A(30) = A(30-1) + 3$

$A(29) + 3$

$A(n-1)$

$A(1)$

correct "Evaluating Functions" ws (yellow)

Name_____**Hour**_____**Score**

Evaluating Functions

1. Evaluate the following expressions given the functions below:

$g(x) = -3x + 1$ $f(x) = x^2 + 7$ $h(x) = \frac{12}{x}$ $j(x) = 2x + 9$

a. $g(10) =$

b. $f(3) =$

c. $h(-2) =$

d. $j(7) =$

e. $h(a)$

f. $g(b+c)$

g. $f(h(x))$

h. Find x if $g(x) = 16$

i. Find x if $h(x) = -2$

j. Find x if $f(x) = 23$

2. Translate the following statements into coordinate points:

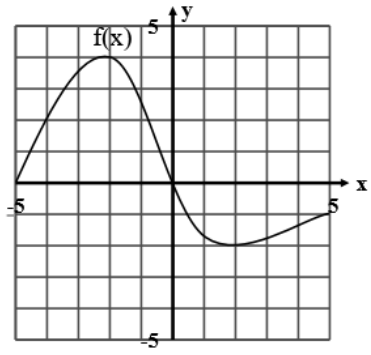
a. $f(-1) = 1$

b. $h(2) = 7$

c. $g(1) = -1$

d. $k(3) = 9$

3. Given this graph of the function f(x):



Find:

a. f(–4) = **b.** f(0) = **c.** f(3) **d.** f(-5)

e. x when f(x) = 2 **f.** x when f(x) = 0

4. Find an equation of a linear function given h(1) = 6 and h(4) = –3.

Name Key Hour Score

Evaluating Functions

+ p143; 31-34 (3)

1. Evaluate the following expressions given the functions below:

$g(x) = -3x + 1$ $f(x) = x^2 + 7$ $h(x) = \frac{12}{x}$ $j(x) = 2x + 9$

a. $g(10) = -3(10)+1 = -29$ (10, -29)

b. $f(3) = (3)^2+7 = 16$

c. $h(-2) = \frac{12}{-2} = -6$

d. $j(7) = 2(7)+9 = 23$

e. $h(a) = \frac{12}{a}$

f. $g(b+c) = -3(b+c)+1 = -3b-3c+1$

g. $f(h(x)) = \left(\frac{12}{x}\right)^2+7 = \frac{144}{x^2}+7$

h. Find x if $g(x) = 16$ $-3x+1 = 16$, $-3x = 15$, $x = -5$

i. Find x if $h(x) = -2$ $\frac{12}{x} = -2$, $-2x = 12$, $x = -6$

j. Find x if $f(x) = 23$ $x^2+7 = 23$, $x^2 = 16$, $x = 4, -4$

$x^2+7=23$, $-7 \quad -7$, $x^2 = 16$, $x = \pm 4$

2. Translate the following statements into coordinate points:

a. $f(-1) = 1$ (-1, 1)

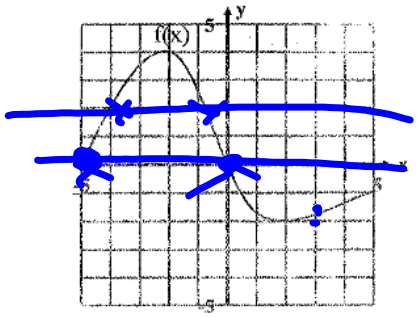
b. $h(2) = 7$ (2, 7)

c. $g(1) = -1$ (1, -1)

d. $k(3) = 9$ (3, 9)

$\frac{\text{correct}}{21} \times 10$ ↑

3. Given this graph of the function f(x):



Find:

a. f(–4) = 2 **b.** f(0) = 0 **c.** f(3) = -1.7 **d.** f(-5) = 0

e. x when f(x) = 2

X = -4, -0.8

f. x when f(x) = 0

X = -5, 0

4. Find an equation of a linear function given h(1) = 6 and h(4) = –3.

x	y
1	6
2	3
3	0
4	-3

(1, 6) (4, -3)

$m = \frac{-3-6}{4-1} = \frac{-9}{3} = -3$

$h(x) = -3x + 9$

2.7 continued... pg 152

- I can write a recursive formula given an explicit formula

- I can write an explicit formula given a recursive formula

not in book

An arithmetic sequence is represented by the recursive formula $A(n) = A(n-1) + 12$. If the first term of the sequence is 19, write the explicit formula.

$A(n) = A(1) + (n-1)d$

$A(n) = 19 + (n-1)12$

$A(92) = 19 + (91)12$

$A(92) = 1,111$

19, 31, 43, ...

got it pg 152

a. For the recursive formula A(n) = A(n - 1) + 2 with A(1) = 21, find an explicit formula that represents the same sequence

$A(n) = A(1) + (n-1)d$

$A(n) = 21 + (n-1)2$

n	A(n)
1	21 = 21
2	23 = 21 + 2
3	25 = 21 + 2 + 2
4	27 = 21 + 2 + 2 + 2
5	29

b. A(n) = A(n - 1) + 7; A(1) = 2

$A(n) = 2 + (n-1)7$

Not in book

An arithmetic sequence is represented by the explicit formula A(n) = 32 + (n - 1)(22). What is the recursive formula?

Got it pg 153

a. For the explicit formula A(n) = 76 + (n - 1)(10), find a recursive formula that represents the same sequence.

$A(1) = 76,$

$A(30) = A(30-1) + 10$

b. A(n) = 1 + (n - 1)(3)

$A(1) = 1$

$A(n) = A(n-1) + 3$

76, 86, 96, 106, ...

n	A(n)
30	
29	A(29)

Write a recursive and explicit formula for the arithmetic sequence

n	A(n)
1	15
2	17
3	19
...	....
10	33
100	213
150	313

R: $A(1)=15$

$A(n)=A(n-1)+2$

E: $A(n)=15+(n-1)2$

$A(10)=15+9(2)=33$

$A(100)=15+99(2)=213$

$A(150)=15+149(2)=313$

Write a recursive and explicit formula for the arithmetic sequence

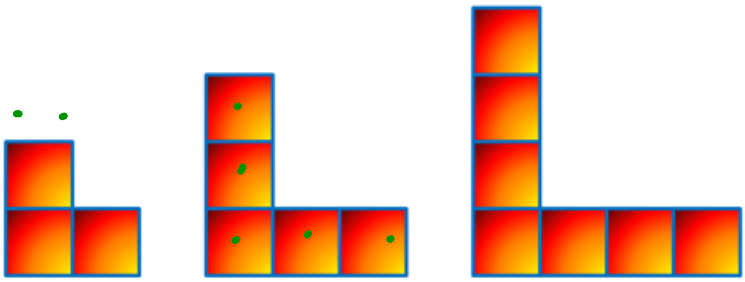


Diagram 1 Diagram 2 Diagram 3

1, 3
2, 5
3, 7

Linear Eqns from Tables and Patterns ws - due Tues

Name _____ Date _____ Hour _____ Score

Linear Equations from Tables and Patterns

Write the recursive and explicit formulas for each arithmetic sequence. Use your equation to complete the table.

odds only

1)

1	6
2	7
3	8
. . .	. . .
10	
100	
150	

2)

1	7
2	11
3	15
. . .	. . .
10	
100	
150	

3)

2	7
3	11
4	15
. . .	. . .
10	
100	
150	

4)

2	1
4	3
6	5
. . .	. . .
10	
100	
150	

5)

1	3
2	6
3	9
. . .	. . .
10	
100	
150	

6)

1	8
2	13
3	18
. . .	. . .
10	
100	
150	

7)

3	11
4	16
5	21
. . .	. . .
10	
100	
150	

8)

1	8
2	12
3	16
. . .	. . .
10	
100	
150	

9)

1	8
2	10
3	12
. . .	. . .
10	
100	
150	

10)

2	3
3	5
4	7
. . .	. . .
10	
100	
150	

11)

4	3
6	4
8	5
. . .	. . .
10	
100	
150	

12)

2	25
4	29
6	33
. . .	. . .
10	
100	
150	

Write the recursive and explicit formulas for each arithmetic sequence.

y represents the number of boxes at each step "x"

13. x = 1 x = 2 x = 3 x = 4

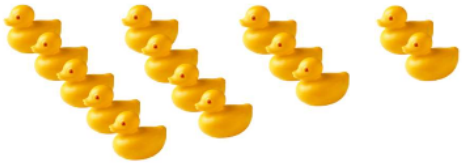
14. x = 0 x = 1 x = 2 x = 3

15. x = 2 x = 4 x = 6 x = 8

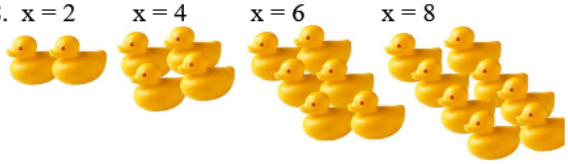
16. x = 2 x = 4 x = 6 x = 8

y represents the number of ducks in each row "x"

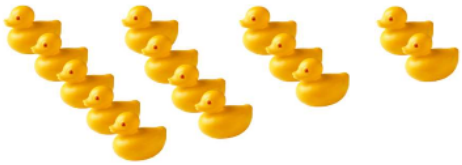
17. x = 0 x = 1 x = 2 x = 3



18. x = 2 x = 4 x = 6 x = 8



19. x = 2 x = 4 x = 6 x = 8



20. x = 2 x = 4 x = 6 x = 8

y represents the number of dots at each step "x"

21. x = 1 x = 2 x = 3 x = 4

22. x = 0 x = 1 x = 2 x = 3

23. x = 3 x = 6 x = 9 x = 12

24. x = 1 x = 2 x = 3 x = 4