

## Lesson 3.1 • Recursive Sequences

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

1. Evaluate the expression  $\frac{2(3x+1)}{-4}$  for each value of  $x$ .

a.  $x = 9$

b.  $x = 2$

c.  $x = -1$

d.  $x = 14$

2. Consider the sequence of figures made from triangles.

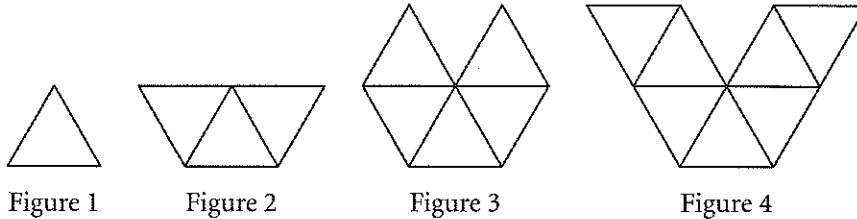


Figure 1

Figure 2

Figure 3

Figure 4

- Complete the table for five figures.
- Write a recursive routine to find the perimeter of each figure.
- Find the perimeter of Figure 10.
- Which figure has a perimeter of 51?

Figure #	Perimeter
1	3
2	5
3	
4	
5	

3. List the first six values generated by the following recursive routine:

$-27.4$

Ans +  $9.2$  , , ...

4. Write a recursive routine to generate each sequence. Then use your routine to find the 10th term of your sequence.

a.  $7.8, 3.6, -0.6, -4.8, \dots$

b.  $-9.2, -6.5, -3.8, -1.1, \dots$

c.  $1, 3, 9, 27, \dots$

d.  $36, 12, 4, 1.\bar{3}, \dots$

5. Ben's school is  $\frac{3}{4}$  mile, or 3960 feet, away from his house. At 3:00, Ben walks straight home at 330 feet per minute.

- On your calculator, enter a recursive routine that calculates how far Ben is from home each minute after 3:00.
- How far is he from home at 3:05?
- At what time does Ben arrive home?

# Lesson 3.2 • Linear Plots

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

1. Solve each equation.

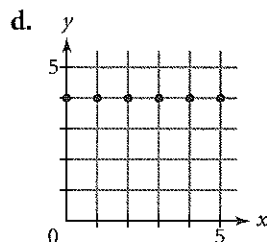
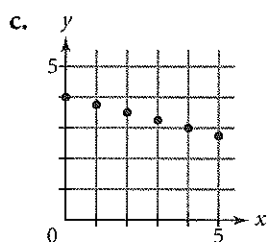
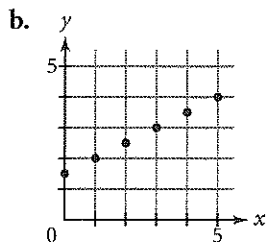
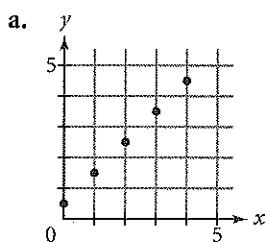
a.  $8(x - 3) - 9 = -25$

b.  $16 - 5(x - 4) = 46$

c.  $\frac{37 - 2(x + 8)}{4} = 4$

d.  $\frac{-3(x - 9) + 4}{-4} = -10$

2. List the terms of each number sequence of  $y$ -coordinates for the points shown on each graph. Then write a recursive routine for each sequence.



3. A store could use the equation  $P = 6.75 + 1.20w$  to calculate the price  $P$  it charges to mail merchandise that weighs  $w$  lb. (1 lb = 16 oz)

- a. Find the price of mailing a 3 lb package.
- b. Find the cost of mailing a 9 lb 8 oz package.
- c. What is the real-world meaning of 6.75?
- d. What is the real-world meaning of 1.20?

4. Consider the following expression:

$$\frac{4(x - 5) - 8}{-3}$$

- a. Use the order of operations to find the value of the expression if  $x = 1$  and if  $x = 8$ .
  - b. Set the expression equal to 12. Create an undoing table and solve by undoing the order of operations you used in 4a.
5. The equation  $y = 115 + 60x$  gives the distance in miles that a trucker is from Flint after  $x$  hours.
- a. How far is the trucker from Flint after 2 hours and 15 minutes?
  - b. How long will it take until the trucker is 410 miles from Flint? Give the answer in hours and minutes.

**LESSON 3.1 • Recursive Sequences**

- 1. a. -14
- b. -3.5
- c. 1
- d. -21.5

2. a.

Figure #	Perimeter
1	3
2	5
3	7
4	9
5	11

- b. 3 [ENTER]  
   Ans + 2 [ENTER] [ENTER], ...
- c. 21           d. Figure 25
- 3. {-27.4, -18.2, -9, 0.2, 9.4, 18.6}
- 4. a. Start with 7.8, then apply the rule  $\text{Ans} - 4.2$ ; -30.
- b. Start with -9.2, then apply the rule  $\text{Ans} + 2.7$ ; 15.1.
- c. Start with 1, then apply the rule  $\text{Ans} \cdot 3$ ; 19,683.
- d. Start with 36, then apply the rule  $\text{Ans} \div 3$ ;  
         $\frac{4}{2187} \approx 0.001829$ .

5. a.

3960	3960
Ans-330	3630
	3300
	2970
	2640

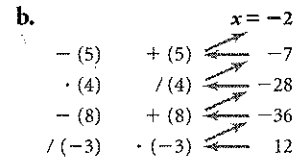
- b. 2310 ft
- c. at 3:12

**LESSON 3.2 • Linear Plots**

- 1. a.  $x = 1$    b.  $x = -2$    c.  $x = 2.5$    d.  $x = -3$
- 2. a. 0.5, 1.5, 2.5, 3.5, 4.5  
    0.5 [ENTER]; Ans + 1 [ENTER] [ENTER], ...
- b. 1.5, 2, 2.5, 3, 3.5, 4  
    1.5 [ENTER]; Ans + 0.5 [ENTER] [ENTER], ...
- c. 4, 3.75, 3.5, 3.25, 3, 2.75  
    4 [ENTER]; Ans - 0.25 [ENTER] [ENTER], ...
- d. 4, 4, 4, 4, 4, 4  
    4 [ENTER]; Ans + 0 [ENTER] [ENTER], ...

- 3. a. \$10.35
- b. \$18.15
- c. The basic handling charge for any package.
- d. The cost per pound for a package.

4. a. 8;  $-\frac{4}{3}$



- 5. a. 250 mi
- b. 4 h 55 min