



3-1 Additional Practice

Relations and Functions

What is the domain and range of each function?

1.

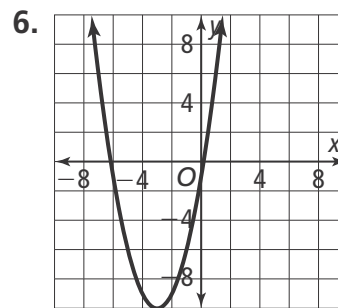
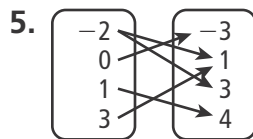
x	3	5	7	8	11
y	6	7	7	9	14

2.

x	-3	-1	2	5	7
y	9	5	4	-5	-7

Is each relation a function? If so, state whether it is one-to-one or many-to-one.

3. $\{(-4, 7), (-3, 5), (1, 4), (3, -8), (5, -11)\}$ 4. $\{(-4, 8), (-2, 4), (0, 1), (2, 4), (4, 8)\}$



7. Explain how the vertical line test proves that a relation is not a function.

8. Fiona buys different amounts of gas at \$2.25. She has a graph which shows the different amounts she should pay. What constraints are there on the domain of the function?



3-2 Additional Practice

Linear Functions

What is the value of $f(-3)$ for each function?

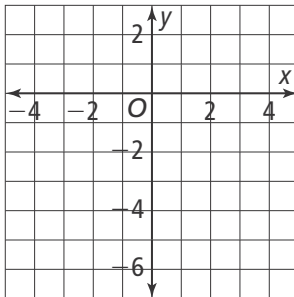
1. $f(x) = 4x - 9$

2. $f(x) = -\frac{1}{3}x + 13$

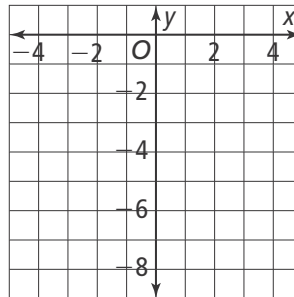
3. $f(x) = -2x - 11$

Draw the graph of each linear function.

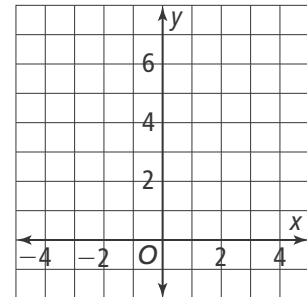
4. $f(x) = 3x - 6$



5. $f(x) = -2(x + 4)$



6. $f(x) = \frac{1}{2}x + 5$



Use the data in each table to write a linear function using function notation.

7.

x	y
-3	-0.6
1	0.2
7	1.4

8.

x	y
-5	-10
-2	-1
4	17

9.

x	y
-5	8
-2	2
8	-18

10. A function, $f(x) = 4x + 5$, has a domain $0 \leq x \leq 50$. What is its range?

11. For a basic subscription, a cable television provider charges an activation fee of \$60, plus \$125 per month. What linear function represents the total cost of a basic cable subscription for t months? What is the total cost for two years of service?



3-4 Additional Practice

Arithmetic Sequences

Tell whether or not each sequence is an arithmetic sequence. If it is an arithmetic sequence, give the common difference.

1. 4, 8, 12, 16, ...

2. -11, 5, 0, 6, ...

3. 12, 23, 34, 45, ...

Write a recursive formula and an explicit formula for each arithmetic sequence.

4. 9, 15, 21, 27, ...

5. 1.5, 2.25, 3, 3.75, ...

6. 7, 0, -7, -14, ...

Recursive:

Recursive:

Recursive:

Explicit:

Explicit:

Explicit:

Write an explicit formula for each recursive formula and a recursive formula for each explicit formula.

7. $a_1 = 5$

$a_n = a_{n-1} + 3$

8. $a_1 = -8$

$a_n = a_{n-1} - 3$

9. $a_n = 15 + 4n$

10. You are given the first four terms of an arithmetic sequence. Why might you use a recursive formula? Why might you use an explicit formula? Under what conditions might a recursive formula be preferred over the explicit formula? Under what conditions might an explicit formula be preferred over the recursive formula?

11. You open a savings account with a \$400 deposit. Each month after that, you deposit \$25. Write an explicit rule to represent the amount of money you deposit into your savings account. How much money will you have in the account on month 12?