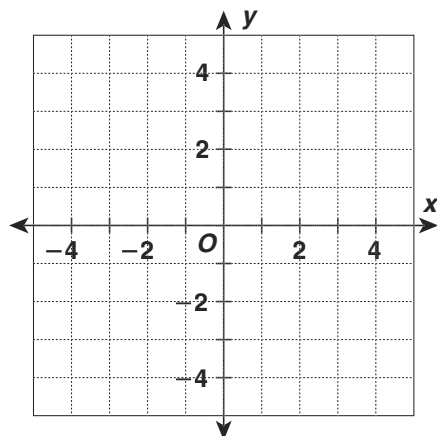


**LESSON**  
**13-4** **Practice B**  
**Linear Functions**

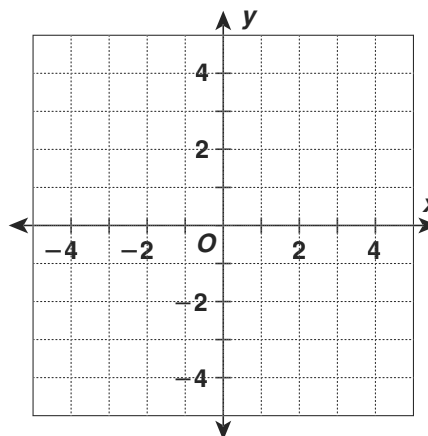
Determine whether each function is linear.

1.  $f(x) = -3x + 2$



\_\_\_\_\_

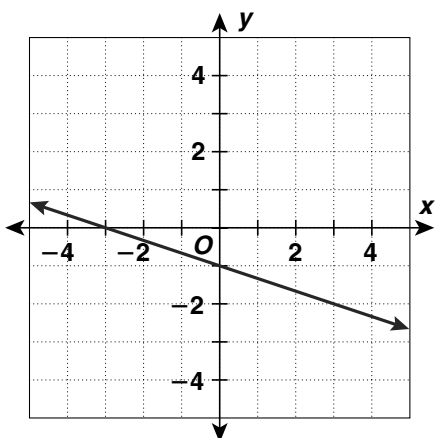
2.  $f(x) = x^2 - 1$



\_\_\_\_\_

Write a rule for each linear function.

3.



\_\_\_\_\_

4.

$x$	$y$
-3	16
-1	12
3	4
7	-4

\_\_\_\_\_

5. At the Sweater Store, the price of a sweater is 20% more than the wholesale cost, plus a markup of \$8. Find a rule for a linear function that describes the price of sweaters at the Sweater Store. Use it to determine the price of a sweater with a wholesale cost of \$24.50.

\_\_\_\_\_

\_\_\_\_\_

## LESSON 13-3 Reading Strategies

### 13-3 Look for a Pattern

To continue a sequence or find the rule for the sequence, **look for a pattern**. You can analyze increases (or decreases) from one term to the next to find the pattern.

Term	1st	2nd	3rd	4th	5th
Value	2	5	9	14	20

$\begin{array}{ccccc} & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & & \end{array}$

Use the table to answer each question.

- What is the 1st term in the sequence? 2
- What is the 2nd term of the sequence? 5
- What is the increase in value from the 1st term to the 2nd term? 3
- What is the increase in value between the 2nd and 3rd terms? 4
- What is the increase between the 3rd and 4th terms? 5
- List in order the increases you found between one number and the next in the sequence above. 3, 4, 5
- What pattern do you see in the increases?

Possible answer: Each term increases by one more than the previous term.

- What will the 6th term in the sequence be? 27
- What will the 10th term in the sequence be? 65

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## LESSON 13-3 Puzzles, Twisters and Teasers

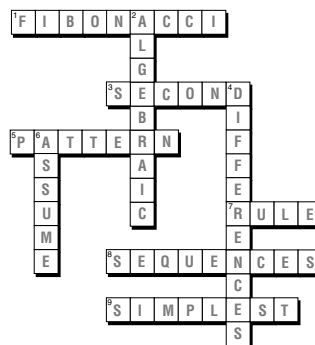
### 13-3 Puzzle Pattern!

Across

- In a \_\_\_\_\_ sequence, add the two previous terms to find the next term.
- If you do not see a pattern in the first differences, try finding the \_\_\_\_\_ differences.
- To continue a sequence, look for a \_\_\_\_\_.
- Some sequences are defined by a given \_\_\_\_\_.
- First and second differences can help you find patterns in some \_\_\_\_\_.
- When looking for a sequence with no given rule, try the \_\_\_\_\_ rule first.

Down

- Sometimes a(n) \_\_\_\_\_ rule is used to define a sequence.
- To begin, look for a pattern using first \_\_\_\_\_.
- In a sequence with no given rule, you cannot \_\_\_\_\_ what the next term will be.



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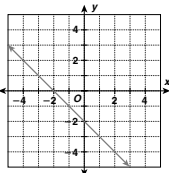
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## LESSON 13-4 Practice A

### 13-4 Linear Functions

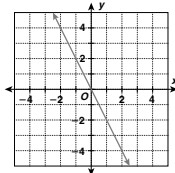
Graph each linear and write a rule for the function.

- | x  | y  |
|----|----|
| -2 | 0  |
| -1 | -1 |
| 0  | -2 |
| 1  | -3 |
| 2  | -4 |



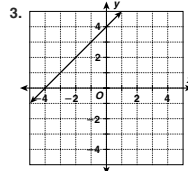
$f(x) = -x - 2$

- | x  | y  |
|----|----|
| -2 | 4  |
| -1 | 2  |
| 0  | 0  |
| 1  | -2 |
| 2  | -4 |

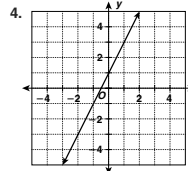


$f(x) = -2x$

Write the rule for each linear function.



$f(x) = x + 4$



$f(x) = 2x + 1$

- A salesperson receives a base monthly salary of \$400, plus 5% of her total sales for the month. Find a rule for the linear function that describes her monthly salary. Use it to determine her salary if her total sales in January are \$22,400.

$f(x) = 0.05x + 400$ , where  $x$  is the total sales for a month.

$f(22,400) = 0.05 \cdot 22,400 + 400 = \$1,520$

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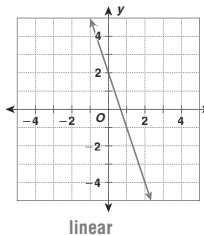
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## LESSON 13-4 Practice B

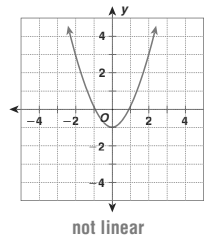
### 13-4 Linear Functions

Determine whether each function is linear.

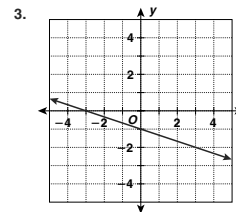
1.  $f(x) = -3x + 2$



2.  $f(x) = x^2 - 1$



Write a rule for each linear function.



$f(x) = -\frac{1}{3}x - 1$

- | x  | y  |
|----|----|
| -3 | 16 |
| -1 | 12 |
| 3  | 4  |
| 7  | -4 |

$f(x) = -2x + 10$

- At the Sweater Store, the price of a sweater is 20% more than the wholesale cost, plus a markup of \$8. Find a rule for a linear function that describes the price of sweaters at the Sweater Store. Use it to determine the price of a sweater with a wholesale cost of \$24.50.

$f(x) = 1.2x + 8$ , where  $x$  is the wholesale cost of the sweater.

$f(24.50) = 1.2 \cdot 24.50 + 8 = \$37.40$

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