

Directions: Place your Problems and Analysis pages side by side. Follow the directions on the Analysis page.

1

The table shows how many laps,  $x$ , a race car can drive in  $y$  seconds.

Race Car Speed

Laps	Seconds
3	243
18	1458
24	1944
36	2916

Which equation describes this relationship?

- A**  $y = 3x$   
**B**  $y = x + 3$   
**C**  $y = x + 243$   
 **D**  $y = 81x$

2

A balloon is floating at a constant rate into the sky. The equation  $y = 2x + 3$  can be used to represent this situation, where  $y$  is the elevation of the balloon in yards and  $x$  is the number of seconds the balloon has been floating.

Given the equation above, which statement best describes the elevation of the balloon?

- A** From a starting position of 2 yards off the ground, the balloon is descending 3 yards per second.  
**B** From a starting position of 2 yards off the ground, the balloon is ascending 3 yards per second.  
**C** From a starting position of 3 yards off the ground, the balloon is descending 2 yards per second.  
 **D** From a starting position of 3 yards off the ground, the balloon is ascending 2 yards per second.

3

Which table contains only values that satisfy the equation  $y = 3x - 6$ ?

**A**

$x$	$y$
3	9
5	15
10	30
12	36

(3, 3)  
(5, 9)  
(10, 24)  
(12, 30)

**C**

$x$	$y$
4	6
8	18
12	30
16	42

**B**

$x$	$y$
4	-6
5	-11
6	-12
11	-27

(4, 6)  
(5, 9)  
(6, 12)  
(11, 27)

**D**

$x$	$y$
3	-15
8	-30
10	-36
16	-54

(3, 3)  
(8, 18)  
(10, 24)  
(16, 42)

**Directions:** Place your Problems and Analysis pages side by side. Follow the directions on the Analysis page.

Instead of doing an operation, some problems ask this question: How are things related? These problems require you to read the problem carefully and to analyze ALL the answer choices before you make a choice. If one part of the answer choice is wrong, then the WHOLE answer is wrong.

### Problem #1

1. This problem gives you a table of information. You have to choose the equation that matches the information. Fill in the process column to show the relationship between the number of laps and the time.

Laps, $x$	Process	Time, $y$ (seconds)
3	$3 \times 81$	243
18	$3 \times 81$	1,458
24	$3 \times 81$	1,944
36	$3 \times 81$	2,916

2. Why is Answer Choice D the correct answer? *It shows that you multiply the number of laps,  $x$ , by 81 to get the time,  $y$ .*

### Problem #2

3. Highlight the equation. Then highlight the words that define  $y$  and  $x$  (the words that  $y$  and  $x$  stand for). Fill in the blanks in the equation below using the words that define  $y$  and  $x$ .

$$\underline{\text{elevation}} = 2(\underline{\text{number of seconds}}) + 3$$

4. What does *elevation* mean? height above ground
5. What does *ascending* mean? going up What does *descending* mean? going down
- Based on the equations, what is the starting position of the balloon? 3 yards off the ground
6. How fast does the balloon ascend? 2 yards per second
7. Circle the correct answer choice that matches the information above.

### Problem #3

8. What does the word *only* mean in this problem? *The table can't have any rows that don't match the equation.*
9. Answer choices A, B, and D are incorrect. Correct the rows that are incorrect.

# A N A L Y S I S

**Directions:** Use the analysis and problems to generalize how to solve the problems.

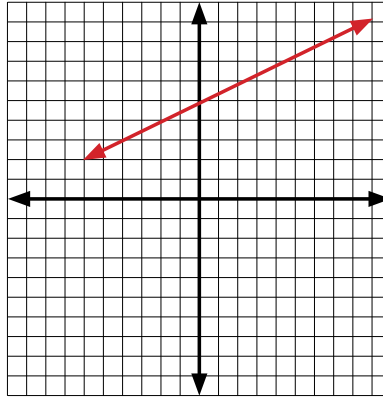
### Start with a Table

Use the table below to find the equation and the graph. Then choose the correct verbal description.

**Table**

x	y
1	7
2	9
3	11

**Graph**



**Equation**

$$y = 2x + 5$$

**Verbal Description**

The flower vase costs \$5 and each flower costs \$2.

The flower vase costs \$2 and each flower costs \$5.

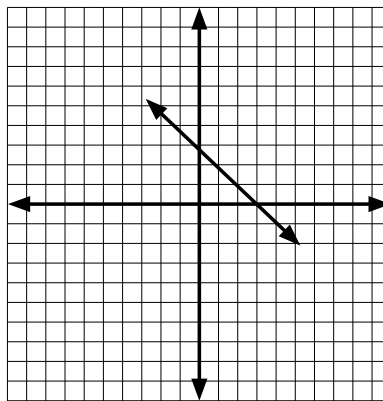
### Start with a Graph

Use the graph below to make a table and write the equation. Then choose the correct verbal description.

**Table**

x	y
0	3
1	4
2	5

**Graph**



**Equation**

$$y = -x + 3$$

**Verbal Description**

The boy's hand was 3 feet from the ground when he let go of the balloon. It floated down at 1 foot per second.

The boy's hand was 1 foot from the ground when he let go of the balloon. It floated down at 3 feet per second.

J  
O  
U  
R  
N  
A  
L

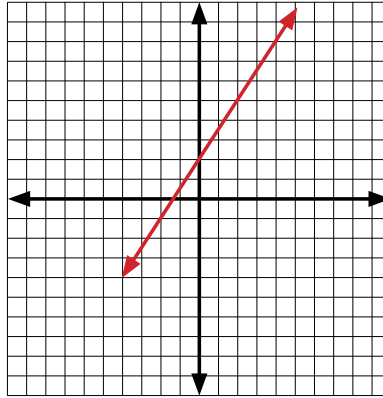
**Start with an Equation**

Read the equation below. Then create the table and graph. Circle the correct verbal description.

**Table**

x	y
0	3
1	4.5
2	6

**Graph**



**Equation**

$$y = \frac{3}{2}x + 3$$

**Verbal Description**

- It costs \$3 to join and \$1.50 per month.
- It costs \$1.50 to join and \$3 per month.

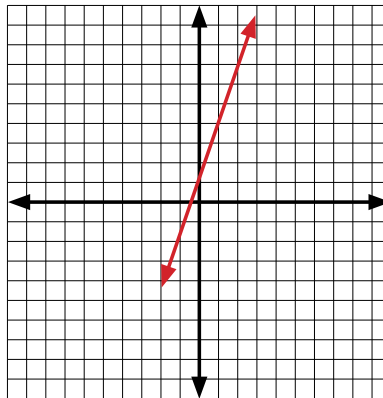
**Start with a Verbal Description**

Read the verbal description below. Then create the table and graph. Write the equation.

**Table**

x	y
0	0
1	4.50
2	7.50

**Graph**



**Equation**

$$y = 3x + 1.50$$

**Verbal Description**

A couple takes a taxi from their home to a restaurant. The taxi charges a \$1.50 fee plus \$3 per mile.

JOURNAL

# 7.7A Representing Situations

## PROBLEMS

**Directions:** Place your Problems and Analysis pages side by side. Follow the directions on the Analysis page.

# 1

The table shows how many laps,  $x$ , a race car can drive in  $y$  seconds.

**Race Car Speed**

Laps	Seconds
3	243
18	1458
24	1944
36	2916

Which equation describes this relationship?

- A  $y = 3x$
- B  $y = x + 3$
- C  $y = x + 243$
- D  $y = 81x$

# 2

A balloon is floating at a constant rate into the sky. The equation  $y = 2x + 3$  can be used to represent this situation, where  $y$  is the elevation of the balloon in yards and  $x$  is the number of seconds the balloon has been floating.

Given the equation above, which statement best describes the elevation of the balloon?

- A From a starting position of 2 yards off the ground, the balloon is descending 3 yards per second.
- B From a starting position of 2 yards off the ground, the balloon is ascending 3 yards per second.
- C From a starting position of 3 yards off the ground, the balloon is descending 2 yards per second.
- D From a starting position of 3 yards off the ground, the balloon is ascending 2 yards per second.

# 3

Which table contains only values that satisfy the equation  $y = 3x - 6$ ?

**A**

$x$	$y$
3	9
5	15
10	30
12	36

**C**

$x$	$y$
4	6
8	18
12	30
16	42

**B**

$x$	$y$
4	-6
5	-11
6	-12
11	-27

**D**

$x$	$y$
3	-15
8	-30
10	-36
16	-54

**Directions:** Place your Problems and Analysis pages side by side. Follow the directions on the Analysis page.

Instead of doing an operation, some problems ask this question: How are things related? These problems require you to read the problem carefully and to analyze ALL the answer choices before you make a choice. If one part of the answer choice is wrong, then the WHOLE answer is wrong.

**Problem #1**

1. This problem gives you a table of information. You have to choose the equation that matches the information. Fill in the process column to show the relationship between the number of laps and the time.

Laps, $x$	Process	Time, $y$ (seconds)
3		243
18		1,458
24		1,944
36		2,916

2. Why is Answer Choice D the correct answer?

**Problem #2**

3. Highlight the equation. Then highlight the words that define  $y$  and  $x$  (the words that  $y$  and  $x$  stand for). Fill in the blanks in the equation below using the words that define  $y$  and  $x$ .

$$\underline{\hspace{2cm}} = 2(\underline{\hspace{2cm}}) + 3$$

4. What does *elevation* mean? \_\_\_\_\_
5. What does *ascending* mean? \_\_\_\_\_ What does *descending* mean? \_\_\_\_\_
- Based on the equations, what is the starting position of the balloon? \_\_\_\_\_
6. How fast does the balloon ascend? \_\_\_\_\_
7. Circle the correct answer choice that matches the information above.

**Problem #3**

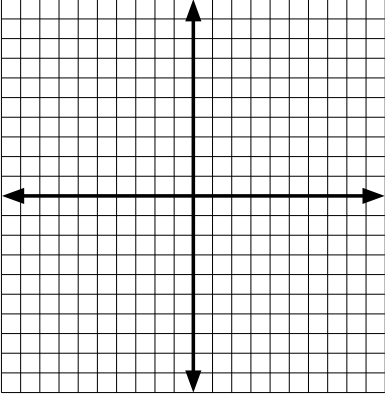
8. What does the word *only* mean in this problem?
9. Answer choices A, B, and D are incorrect. Correct the rows that are incorrect.

A  
N  
A  
L  
Y  
S  
I  
S

**Directions:** Use the analysis and problems to generalize how to solve the problems.

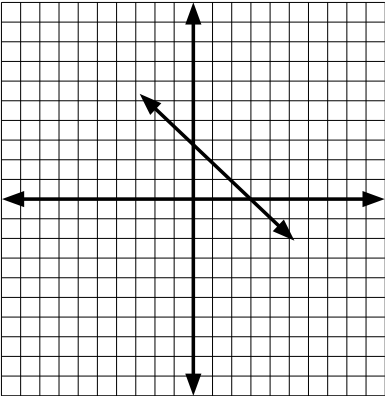
**Start with a Table**

Use the table below to find the equation and the graph. Then choose the correct verbal description.

<p><b>Table</b></p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;"><math>x</math></th> <th style="padding: 5px;"><math>y</math></th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">7</td> </tr> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">9</td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">11</td> </tr> </tbody> </table>	$x$	$y$	1	7	2	9	3	11	<p><b>Graph</b></p> 
$x$	$y$								
1	7								
2	9								
3	11								
<p><b>Equation</b></p>	<p><b>Verbal Description</b></p> <p>The flower vase costs \$5 and each flower costs \$2.</p> <p>The flower vase costs \$2 and each flower costs \$5.</p>								

**Start with a Graph**

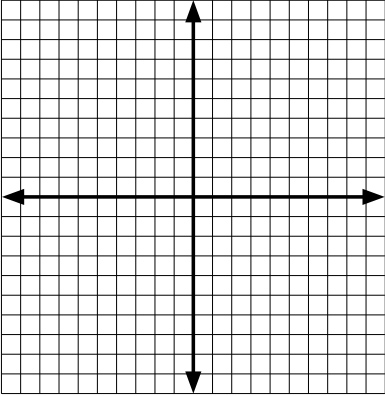
Use the graph below to make a table and write the equation. Then choose the correct verbal description.

<p><b>Table</b></p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <tbody> <tr> <td style="padding: 5px;"> </td> <td style="padding: 5px;"> </td> </tr> <tr> <td style="padding: 5px;"> </td> <td style="padding: 5px;"> </td> </tr> <tr> <td style="padding: 5px;"> </td> <td style="padding: 5px;"> </td> </tr> <tr> <td style="padding: 5px;"> </td> <td style="padding: 5px;"> </td> </tr> </tbody> </table>									<p><b>Graph</b></p> 
<p><b>Equation</b></p>	<p><b>Verbal Description</b></p> <p>The boy's hand was 3 feet from the ground when he let go of the balloon. It floated down at 1 foot per second.</p> <p>The boy's hand was 1 foot from the ground when he let go of the balloon. It floated down at 3 feet per second.</p>								

JOURNAL

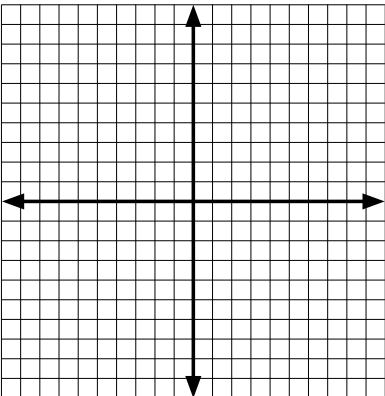
**Start with an Equation**

Read the equation below. Then create the table and graph. Circle the correct verbal description.

<p><b>Table</b></p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td style="width: 50px; height: 20px;"></td><td style="width: 50px; height: 20px;"></td></tr> <tr><td style="width: 50px; height: 20px;"></td><td style="width: 50px; height: 20px;"></td></tr> <tr><td style="width: 50px; height: 20px;"></td><td style="width: 50px; height: 20px;"></td></tr> <tr><td style="width: 50px; height: 20px;"></td><td style="width: 50px; height: 20px;"></td></tr> </table>									<p><b>Graph</b></p> 
<p><b>Equation</b></p> $y = \frac{3}{2}x + 3$	<p><b>Verbal Description</b></p> <p>It costs \$3 to join and \$1.50 per month.</p> <p>It costs \$1.50 to join and \$3 per month.</p>								

**Start with a Verbal Description**

Read the verbal description below. Then create the table and graph. Write the equation.

<p><b>Table</b></p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr><td style="width: 50px; height: 20px;"></td><td style="width: 50px; height: 20px;"></td></tr> <tr><td style="width: 50px; height: 20px;"></td><td style="width: 50px; height: 20px;"></td></tr> <tr><td style="width: 50px; height: 20px;"></td><td style="width: 50px; height: 20px;"></td></tr> <tr><td style="width: 50px; height: 20px;"></td><td style="width: 50px; height: 20px;"></td></tr> </table>									<p><b>Graph</b></p> 
<p><b>Equation</b></p>	<p><b>Verbal Description</b></p> <p>A couple takes a taxi from their home to a restaurant. The taxi charges a \$1.50 fee plus \$3 per mile.</p>								

JOURNAL