

Name \_\_\_\_\_

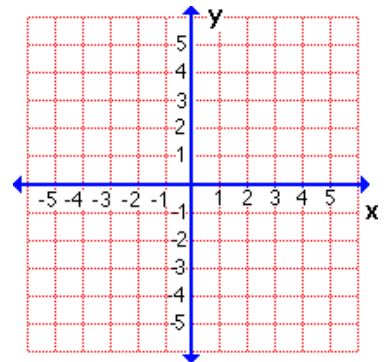
Date \_\_\_\_\_ Pd. \_\_\_\_\_

### Notes: Functions

<b>Function</b>	A relation in which each element of the _____ is paired _____ element of the _____.
<b>Function Notation</b>	A way to name a function that is defined by an equation. In function notation, the equation $y = 3x - 8$ is written as _____.

**Example 1** Determine whether the relation  $\{(6, -3), (4, 1), (7, -2), (-3, 1)\}$  is a function. Explain.

**Example 2** Determine whether  $3x - y = 6$  is a function.



**Example** If  $f(x) = 3x - 4$ , find each value.

a.  $f(3)$

b.  $f(-2)$

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**Exit Card: Functions**

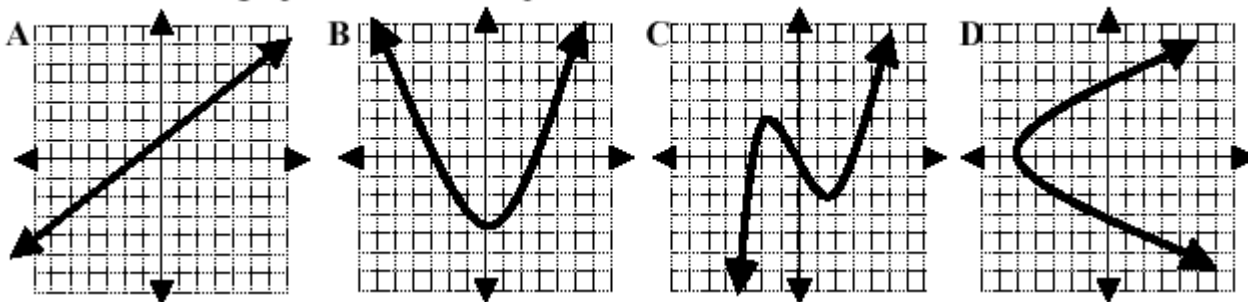
1. Jack pays \$3 for each pizza delivered plus a \$2 delivery charge. The function  $f(x) = 3x + 2$  represents the charge for delivering  $x$  pizzas. What is  $f(6)$ ?

A. 18                      B. 20                      C. 24                      D. 38

2. Which of these sets of ordered pairs represents a function?

F.  $\{(2, 4), (2, 5), (5, 7), (6, 8)\}$                       G.  $\{(-2, 2), (3, 4), (-2, 4), (3, 7)\}$   
 H.  $\{(1, 3), (2, 3), (3, 3), (4, 3)\}$                       J.  $\{(1, 2), (1, 3), (1, 4), (1, 5)\}$

3. Which of these graphs does **NOT** represent a function?



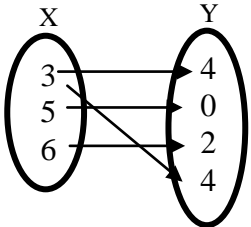
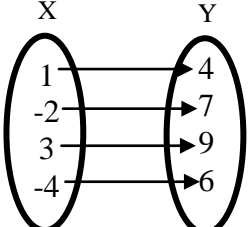
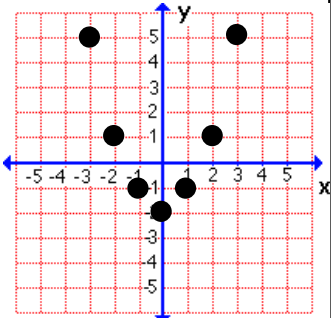
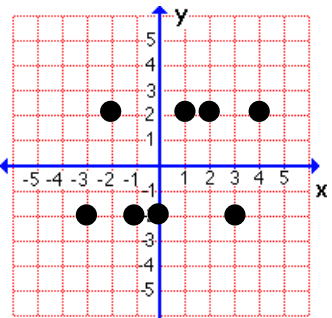
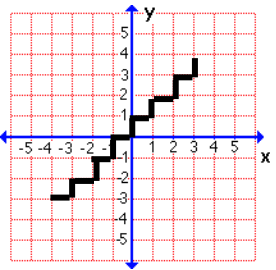
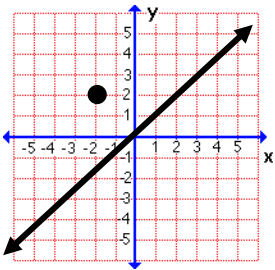
4. Jill is buying curtains.  
 Let  $C(x)$  represent the total cost for  $x$  curtains.  
 The function that gives the relationship between the number of curtains and the total cost is  $C(x) = 20 + 15x$

If Jill paid \$155, how many curtains did she buy?

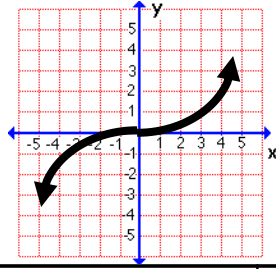
Name \_\_\_\_\_

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**Homework: Page 229 – 230 (17 – 26, 29 – 34, 45 – 51)**

<p>17. Function?</p> 	<p>18. Function?</p> 																								
<p>19. Function?</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;">2</td> <td style="padding: 5px;">7</td> </tr> <tr> <td style="padding: 5px;">4</td> <td style="padding: 5px;">9</td> </tr> <tr> <td style="padding: 5px;">5</td> <td style="padding: 5px;">5</td> </tr> <tr> <td style="padding: 5px;">8</td> <td style="padding: 5px;">-1</td> </tr> </tbody> </table>	$x$	$y$	2	7	4	9	5	5	8	-1	<p>20. Function?</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;">-9</td> <td style="padding: 5px;">-5</td> </tr> <tr> <td style="padding: 5px;">-4</td> <td style="padding: 5px;">0</td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">6</td> </tr> <tr> <td style="padding: 5px;">7</td> <td style="padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;">6</td> <td style="padding: 5px;">-5</td> </tr> <tr> <td style="padding: 5px;">3</td> <td style="padding: 5px;">2</td> </tr> </tbody> </table>	$x$	$y$	-9	-5	-4	0	3	6	7	1	6	-5	3	2
$x$	$y$																								
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<p>21. Function?</p> 	<p>22. Function?</p> 																								
<p>23. Function?</p> <p>{ (5, -7), (6, -7), (8, -1), (0, -1) }</p>	<p>24. Function?</p> <p>{ (4, 5), (3, -2), (-2, 5), (4, 7) }</p>																								
<p>25. Function?</p> <p><math>y = -8</math></p>	<p>26. Function?</p> <p><math>x = 15</math></p>																								
<p>29. Function?</p> 	<p>30. Function?</p> 																								

31. Function?



32.  $f(x) = 3x + 7$ , what is  $f(3)$ ?

33.  $f(x) = 3x + 7$ , what is  $f(-2)$ ?

34.  $g(x) = x^2 - 2x$ , what is  $g(5)$ ?

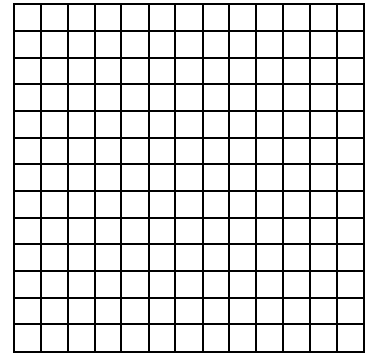
The temperature of the atmosphere decreases about  $5^\circ\text{F}$  for every 1000 feet increase in altitude. Thus, if the temperature at ground level is  $77^\circ\text{F}$ , the temperature at a given altitude is found by using the equation  $t = 77 - 0.005h$ , where  $h$  is the height in feet.

45. Write the equation in function notation.

46. Find  $f(100)$ ,  $f(200)$ , and  $f(1000)$ .

47. Graph the equation.

48. Use the graph of the function to determine the temperature at 4000 feet.



The National Assessment of Educational Progress tests 4<sup>th</sup>, 8<sup>th</sup>, and 12<sup>th</sup> graders in the United States. The average math test scores for 17-year-olds can be represented as a function of the science scores by  $f(s) = 0.8s + 72$ , where  $f(s)$  is the math score and  $s$  is the science score.

49. Graph the function.

50. What is the science score that corresponds to a math score of 308?

51. Krista scored 260 in science and 320 in math. How does her math score compare to the average score of other students who scored 260 in science? Explain your answer.

