

Algebra Support

Topic: Graphing Linear Functions

**Linear Functions Graph Match Activity**

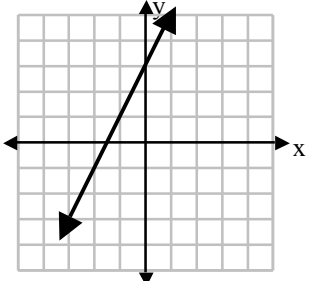
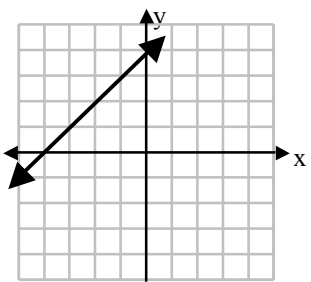
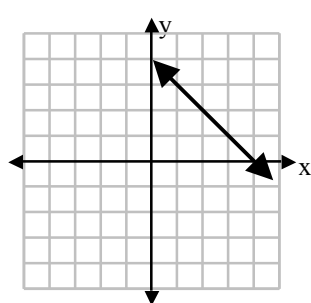
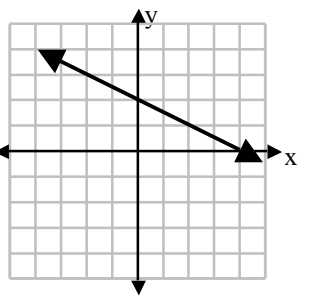
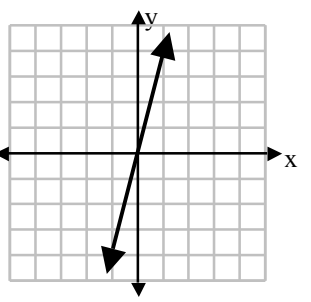
Teacher Instructions:

- Xerox and have students cut apart the following 2 pages of cards. When cutting, tell students to trim extra off of edges as edges will not match. Place one complete set in an envelope, one envelope per group (group size: 2 – 4).
- Provide each group with blank answer grids (2 pages) and glue sticks (or tape)
- Students are to match the 4 representations

Variations:

- Leave out of the envelope 2 or three pieces (an equation from one row, a graph from another, a table from another). Students are required to generate the missing pieces.
- If students are working on graphing, leave out all of the graph pieces and require students to generate.
- If students are working on writing equations, leave out all of the equation pieces and require students to generate.

Verbal Description	Tabular Representation	Graph	Symbolic Representation												
y is always 4 more than x.	<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px 5px;">x</th> <th style="padding: 2px 5px;">y</th> </tr> </thead> <tbody> <tr><td style="padding: 2px 5px;">-4</td><td style="padding: 2px 5px;">3</td></tr> <tr><td style="padding: 2px 5px;">-2</td><td style="padding: 2px 5px;">2</td></tr> <tr><td style="padding: 2px 5px;">0</td><td style="padding: 2px 5px;">1</td></tr> <tr><td style="padding: 2px 5px;">2</td><td style="padding: 2px 5px;">0</td></tr> <tr><td style="padding: 2px 5px;">4</td><td style="padding: 2px 5px;">-1</td></tr> </tbody> </table>	x	y	-4	3	-2	2	0	1	2	0	4	-1		$y = x + 4$
x	y														
-4	3														
-2	2														
0	1														
2	0														
4	-1														
This function is a direct variation with a constant of variation equal to 4.	<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px 5px;">x</th> <th style="padding: 2px 5px;">y</th> </tr> </thead> <tbody> <tr><td style="padding: 2px 5px;">-4</td><td style="padding: 2px 5px;">-5</td></tr> <tr><td style="padding: 2px 5px;">-2</td><td style="padding: 2px 5px;">-1</td></tr> <tr><td style="padding: 2px 5px;">0</td><td style="padding: 2px 5px;">3</td></tr> <tr><td style="padding: 2px 5px;">2</td><td style="padding: 2px 5px;">7</td></tr> <tr><td style="padding: 2px 5px;">4</td><td style="padding: 2px 5px;">11</td></tr> </tbody> </table>	x	y	-4	-5	-2	-1	0	3	2	7	4	11		$y = 4x + 3$
x	y														
-4	-5														
-2	-1														
0	3														
2	7														
4	11														
e input for this function is identical to the output. y is 3 less than twice a number x	<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px 5px;">x</th> <th style="padding: 2px 5px;">y</th> </tr> </thead> <tbody> <tr><td style="padding: 2px 5px;">-4</td><td style="padding: 2px 5px;">8</td></tr> <tr><td style="padding: 2px 5px;">-2</td><td style="padding: 2px 5px;">6</td></tr> <tr><td style="padding: 2px 5px;">0</td><td style="padding: 2px 5px;">4</td></tr> <tr><td style="padding: 2px 5px;">2</td><td style="padding: 2px 5px;">2</td></tr> <tr><td style="padding: 2px 5px;">4</td><td style="padding: 2px 5px;">0</td></tr> </tbody> </table>	x	y	-4	8	-2	6	0	4	2	2	4	0		$y = -\frac{1}{2}x + 2$
x	y														
-4	8														
-2	6														
0	4														
2	2														
4	0														
y is equal to the sum of 3 and twice a number x	<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px 5px;">x</th> <th style="padding: 2px 5px;">y</th> </tr> </thead> <tbody> <tr><td style="padding: 2px 5px;">-4</td><td style="padding: 2px 5px;">-16</td></tr> <tr><td style="padding: 2px 5px;">-2</td><td style="padding: 2px 5px;">-8</td></tr> <tr><td style="padding: 2px 5px;">0</td><td style="padding: 2px 5px;">0</td></tr> <tr><td style="padding: 2px 5px;">2</td><td style="padding: 2px 5px;">8</td></tr> <tr><td style="padding: 2px 5px;">4</td><td style="padding: 2px 5px;">16</td></tr> </tbody> </table>	x	y	-4	-16	-2	-8	0	0	2	8	4	16		$y = 2x + 3$
x	y														
-4	-16														
-2	-8														
0	0														
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y is 3 less than twice a number x	<table border="1" style="display: inline-table; border-collapse: collapse;"> <thead> <tr> <th style="padding: 2px 5px;">x</th> <th style="padding: 2px 5px;">y</th> </tr> </thead> <tbody> <tr><td style="padding: 2px 5px;">-4</td><td style="padding: 2px 5px;">4</td></tr> <tr><td style="padding: 2px 5px;">-2</td><td style="padding: 2px 5px;">4</td></tr> <tr><td style="padding: 2px 5px;">0</td><td style="padding: 2px 5px;">4</td></tr> <tr><td style="padding: 2px 5px;">2</td><td style="padding: 2px 5px;">4</td></tr> <tr><td style="padding: 2px 5px;">4</td><td style="padding: 2px 5px;">4</td></tr> </tbody> </table>	x	y	-4	4	-2	4	0	4	2	4	4	4		$y = 4$
x	y														
-4	4														
-2	4														
0	4														
2	4														
4	4														

<p>The sum of x and y is 4.</p>	<table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="border-right: 1px solid black; border-bottom: 1px solid black;">x</th> <th style="border-bottom: 1px solid black;">y</th> </tr> </thead> <tbody> <tr> <td style="border-right: 1px solid black;">-4</td> <td>8</td> </tr> <tr> <td style="border-right: 1px solid black;">-2</td> <td>6</td> </tr> <tr> <td style="border-right: 1px solid black;">0</td> <td>4</td> </tr> <tr> <td style="border-right: 1px solid black;">2</td> <td>2</td> </tr> <tr> <td style="border-right: 1px solid black;">4</td> <td>0</td> </tr> </tbody> </table>	x	y	-4	8	-2	6	0	4	2	2	4	0		$y = 2x + 3$
x	y														
-4	8														
-2	6														
0	4														
2	2														
4	0														
<p>When x is increased by twice y, the result is 4.</p>	<table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="border-right: 1px solid black; border-bottom: 1px solid black;">x</th> <th style="border-bottom: 1px solid black;">y</th> </tr> </thead> <tbody> <tr> <td style="border-right: 1px solid black;">-4</td> <td>4</td> </tr> <tr> <td style="border-right: 1px solid black;">-2</td> <td>3</td> </tr> <tr> <td style="border-right: 1px solid black;">0</td> <td>2</td> </tr> <tr> <td style="border-right: 1px solid black;">2</td> <td>1</td> </tr> <tr> <td style="border-right: 1px solid black;">4</td> <td>0</td> </tr> </tbody> </table>	x	y	-4	4	-2	3	0	2	2	1	4	0		$y = 2x - 3$
x	y														
-4	4														
-2	3														
0	2														
2	1														
4	0														
<p>The sum of x and y is 4.</p>	<table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="border-right: 1px solid black; border-bottom: 1px solid black;">x</th> <th style="border-bottom: 1px solid black;">y</th> </tr> </thead> <tbody> <tr> <td style="border-right: 1px solid black;">-4</td> <td>8</td> </tr> <tr> <td style="border-right: 1px solid black;">-2</td> <td>6</td> </tr> <tr> <td style="border-right: 1px solid black;">0</td> <td>4</td> </tr> <tr> <td style="border-right: 1px solid black;">2</td> <td>2</td> </tr> <tr> <td style="border-right: 1px solid black;">4</td> <td>0</td> </tr> </tbody> </table>	x	y	-4	8	-2	6	0	4	2	2	4	0		$y = 4$
x	y														
-4	8														
-2	6														
0	4														
2	2														
4	0														
<p>The opposite of half the value of x, when increased by 1 results in the value of y.</p>	<table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="border-right: 1px solid black; border-bottom: 1px solid black;">x</th> <th style="border-bottom: 1px solid black;">y</th> </tr> </thead> <tbody> <tr> <td style="border-right: 1px solid black;">-4</td> <td>-11</td> </tr> <tr> <td style="border-right: 1px solid black;">-2</td> <td>-7</td> </tr> <tr> <td style="border-right: 1px solid black;">0</td> <td>-3</td> </tr> <tr> <td style="border-right: 1px solid black;">2</td> <td>1</td> </tr> <tr> <td style="border-right: 1px solid black;">4</td> <td>5</td> </tr> </tbody> </table>	x	y	-4	-11	-2	-7	0	-3	2	1	4	5		$y = -x + 4$
x	y														
-4	-11														
-2	-7														
0	-3														
2	1														
4	5														
<p>y maintains a constant value</p>	<table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="border-right: 1px solid black; border-bottom: 1px solid black;">x</th> <th style="border-bottom: 1px solid black;">y</th> </tr> </thead> <tbody> <tr> <td style="border-right: 1px solid black;">-4</td> <td>0</td> </tr> <tr> <td style="border-right: 1px solid black;">-2</td> <td>2</td> </tr> <tr> <td style="border-right: 1px solid black;">0</td> <td>4</td> </tr> <tr> <td style="border-right: 1px solid black;">2</td> <td>6</td> </tr> <tr> <td style="border-right: 1px solid black;">4</td> <td>8</td> </tr> </tbody> </table>	x	y	-4	0	-2	2	0	4	2	6	4	8		$y = \frac{1}{2}x + 1$
x	y														
-4	0														
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