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LESSON 18 Graphing Relationships

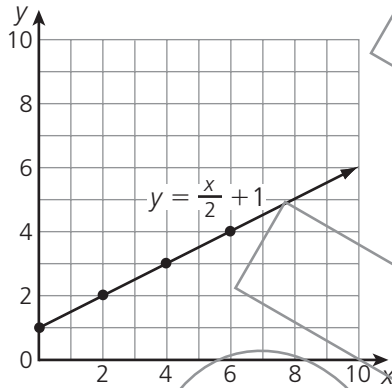
A relationship between two variables can be represented by an equation, a table, or a **graph**.

Graph the equation $y = \frac{x}{2} + 1$.

Create a table:

x	y
0	1
2	2
4	3
6	4

Plot the points (0, 1), (2, 2), (4, 3), and (6, 4) on the plane. Connect the points with a straight line.

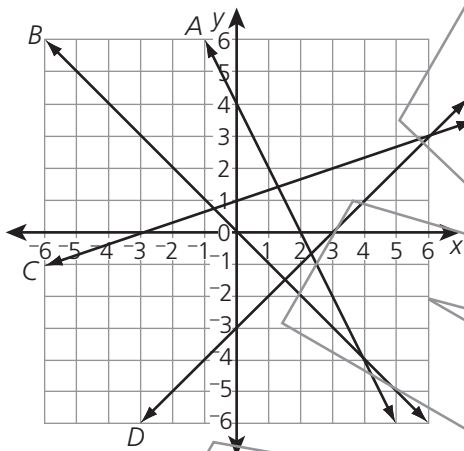


When creating a table, choose x -values that result in whole number y -values.

Avoiding fractions makes the graph easier to plot.

Read each problem. Circle the letter of the best answer.

Use this diagram to answer questions 1–4.



1 Which line is the graph of $y = -x$?

- A line A C line C
B line B D line D

To graph $y = -x$, make a table of values by substituting $x = 0$, $x = 1$, and $x = 2$ into the equation. The resulting x - y pairs are points on the line: (0, 0), (1, -1), and (2, -2). The line containing these points is line B. The correct answer is B.

2 Which line is the graph of $y = \frac{1}{3}x + 1$?

- A line A C line C
B line B D line D

3 Which line matches this function table?

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

- A line A C line C
B line B D line D

4 Which is an equation of line A?

- A $y = -2x - 4$ C $y = 2x - 4$
B $y = -2x + 4$ D $y = 2x + 4$

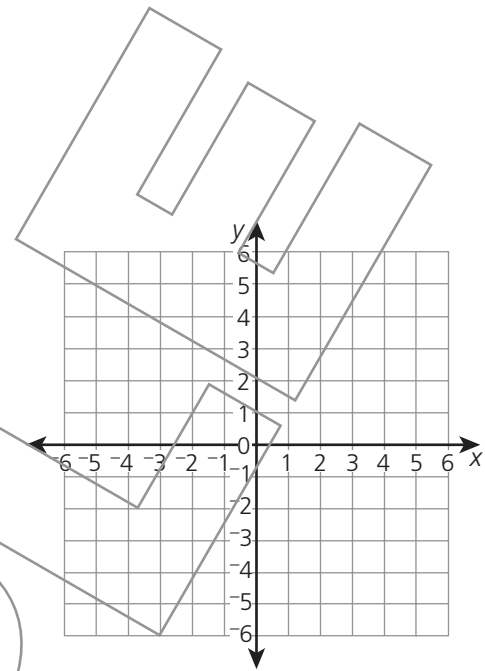
Read each problem. Write your answers.

5 Look at this equation.

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

A Use the equation to complete this function table.

x	y
0	
2	
4	
6	



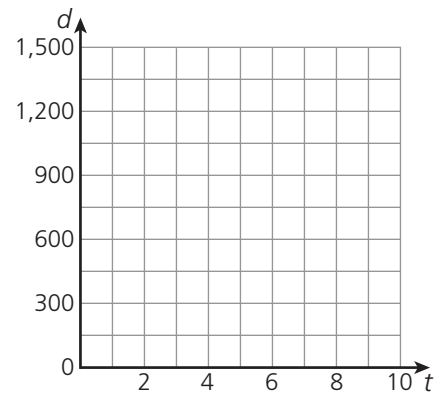
B Graph the equation $y = -\frac{3}{2}x + 2$ on the coordinate plane above.

6 A team of Antarctic scientists is traveling from McMurdo Station to the South Pole, a distance of 1,350 kilometers. They are traveling 75 kilometers each day.

A Write an equation to show the relationship between t , time in days, and d , the team's distance from the South Pole.

Answer: _____

B Graph your equation on the coordinate plane at the right.



C For what value of t will $d = 0$? Explain how you found your answer. What does the answer mean in terms of the scientists' trip to the South Pole?
