

NAME: _____

UNIT 3 • LINEAR AND EXPONENTIAL FUNCTIONS

Lesson 1: Graphs As Solution Sets and Function Notation

Practice 3.1.1: Graphing the Set of All Solutions

For problems 1–4, draw the graph that represents the solution set of the equation.

1. $2x + y = -1$

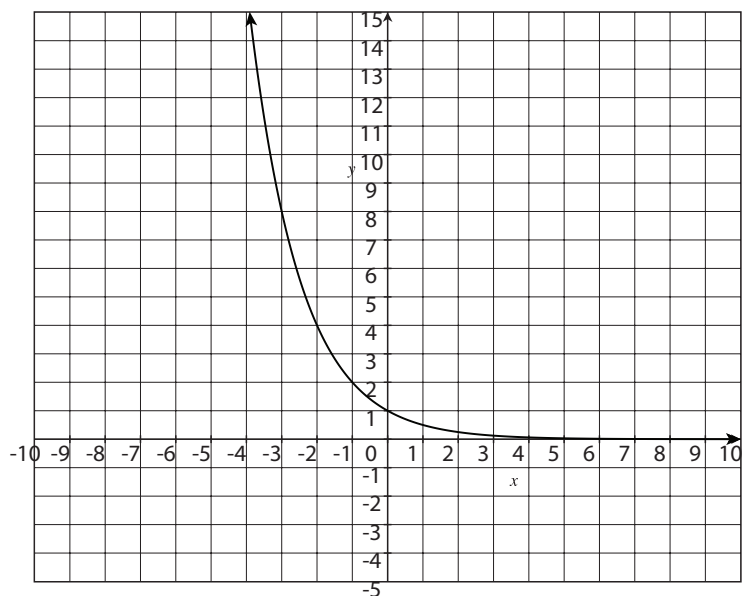
2. $4x - 2y = -6$

3. $y = 2^x$

4. $y = 3^x$

For problems 5 and 6, use each given graph to find three solutions that will satisfy the equation.

5. $y = \left(\frac{1}{2}\right)^x$



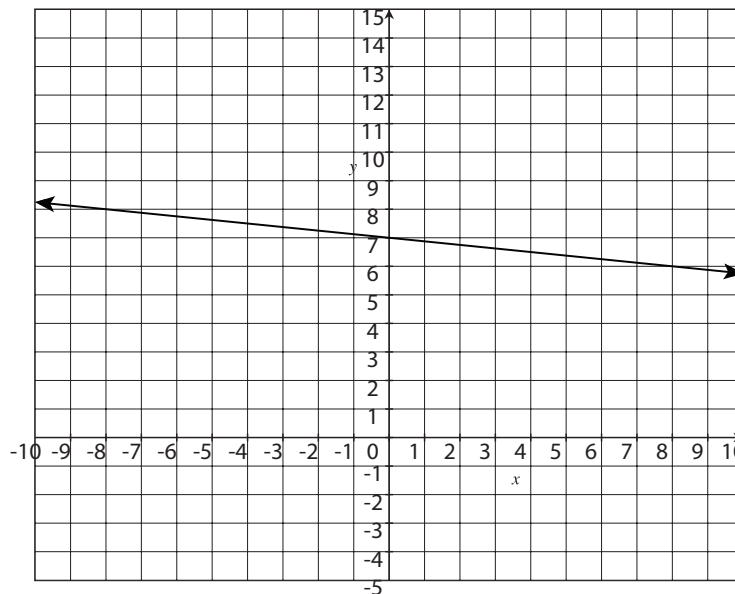
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6. $y = -\frac{1}{8}x + 7$



For problems 7–10, use the given information to answer the questions.

7. The profit of a company each year over the first 5 years of operation can be modeled by the equation $P = 225(1.13)^x + 400$, where P is the profit in dollars and x is the number of years since the company started. Draw the graph of all solutions for this situation. If this pattern continues, what should the profit be in year 7?
8. Katya is a caterer. She has a cookie recipe that calls for 2 eggs per batch. Katya wants to know the number of eggs she needs according to how many batches she cooks. What equation can be used to represent the number of eggs Katya needs for any number of batches? Draw the graph of all solutions for this situation. How many eggs would Katya need for 4 batches of cookies?

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9. The price of a certain company's stock grew at the same rate over the first 6 months of the year. The following table shows the price in dollars per share of stock, P , for each month, t .

t	P
1	35.75
2	36
3	36.25
4	36.5
5	36.75
6	37

Draw a graph to represent the growth of the stock's price per share. What equation can be used to represent this situation? If the pattern continues, what will the price per share be after 12 months?

10. Gas costs \$3 per gallon, which can be modeled by the equation $C = 3x$, where C is the total cost in dollars and x is the number of gallons needed. Your car has a 15-gallon gas tank. Draw a graph that represents all of the possible amounts you might have to pay depending on how many gallons you buy. How much will you have to pay for 7.5 gallons of gas?