



Accurate Representations

Let's represent situations precisely.

7.1 Possible Rectangles

A rectangle has a perimeter of 40 centimeters.

Here are some lengths in centimeters. Decide if each one *could be* a length of this rectangle. Be prepared to explain your reasoning.

1. 10

2. 4.5

3. 20

4. 32

5. -10

6. 0

7. $\frac{21}{4}$



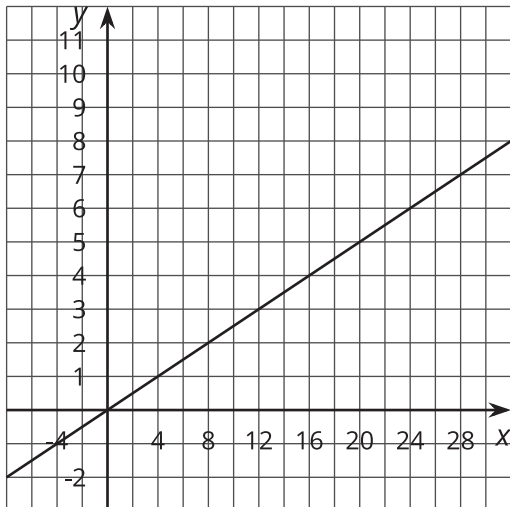
7.2

Which Graph Represents It the Best?

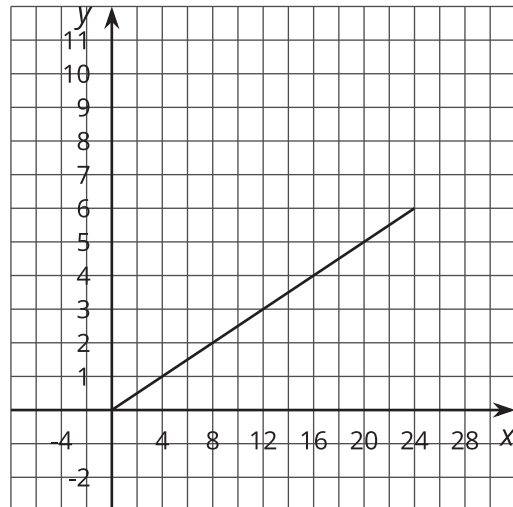
For each situation, several graphs are given. Which graph represents the situation the best? Be prepared to explain your reasoning.

- The fine for an overdue book at the library is \$0.25 per day, up to a maximum of \$6.
 x represents time in days, and y represents the fine in dollars.

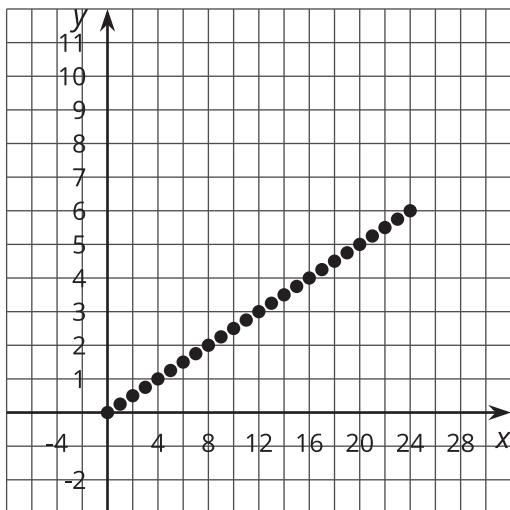
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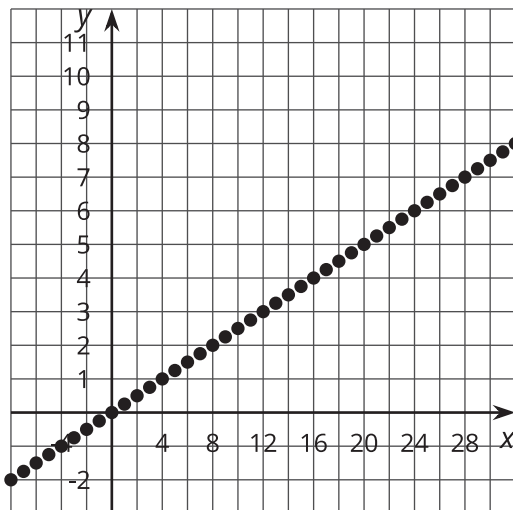
B



C

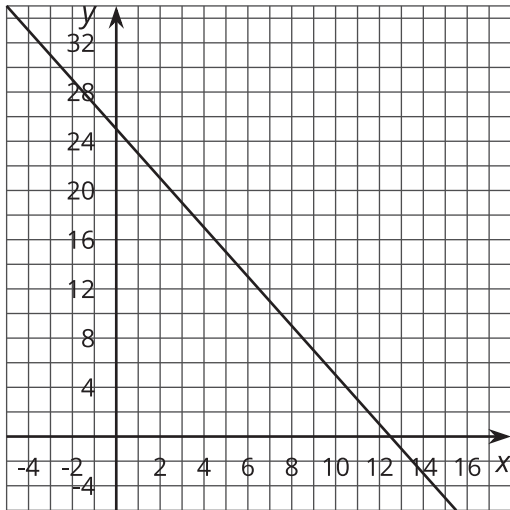


D

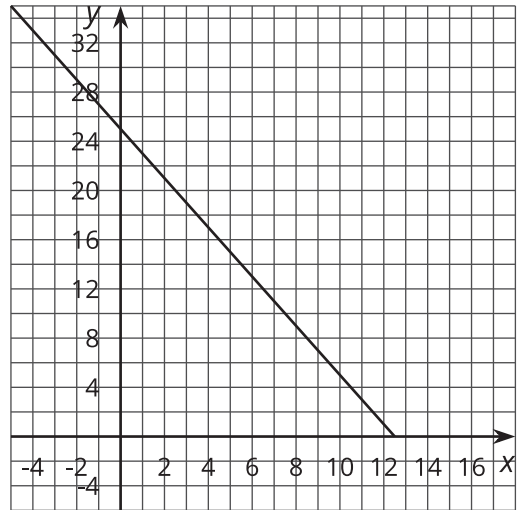


2. A tank that starts with 25 gallons of water drains at a rate of 2 gallons per minute.
 x represents time in minutes, and y represents volume of water in the tank in gallons.

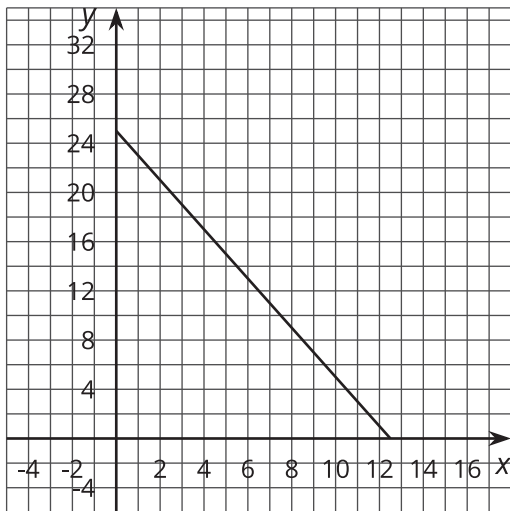
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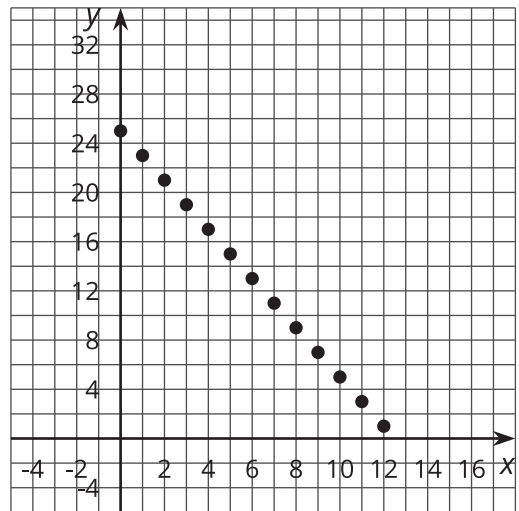
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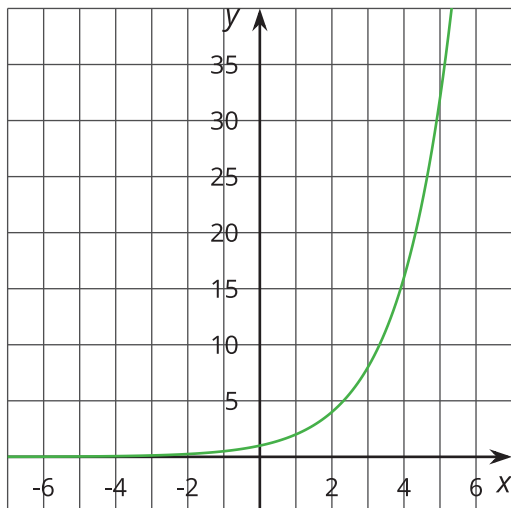


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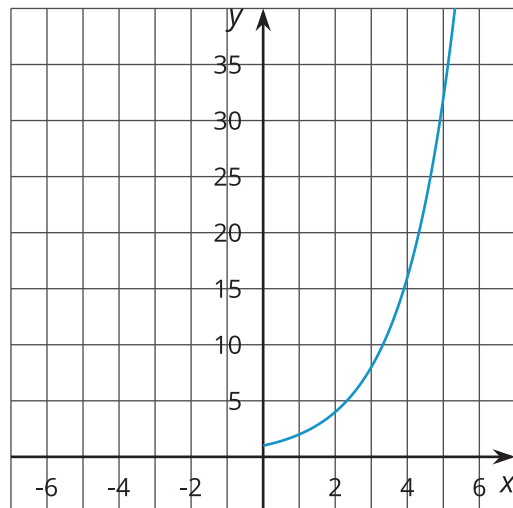


3. Someone folds a paper in half, then in half again repeatedly. After each fold, the thickness of the folded paper increases. x represents the number of folds, and y represents the thickness in layers.

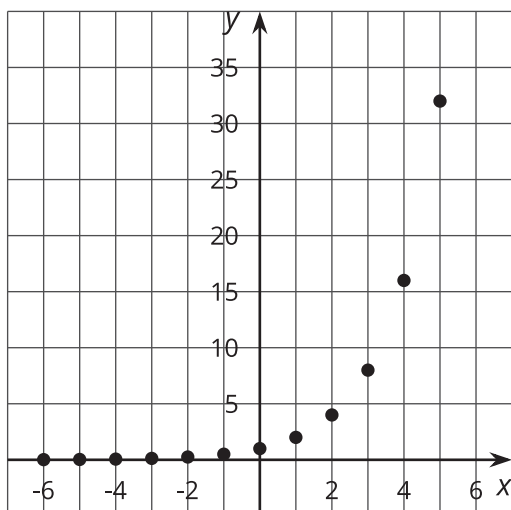
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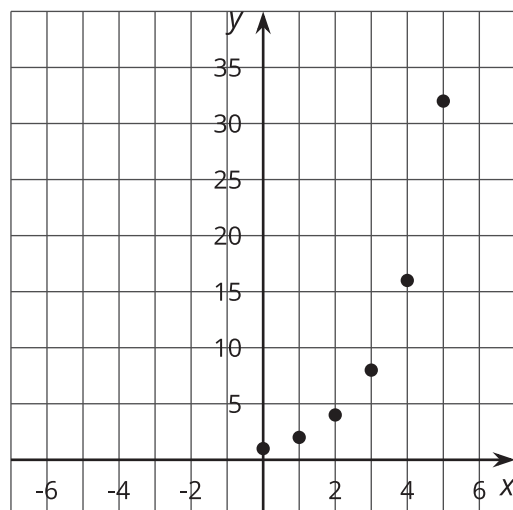
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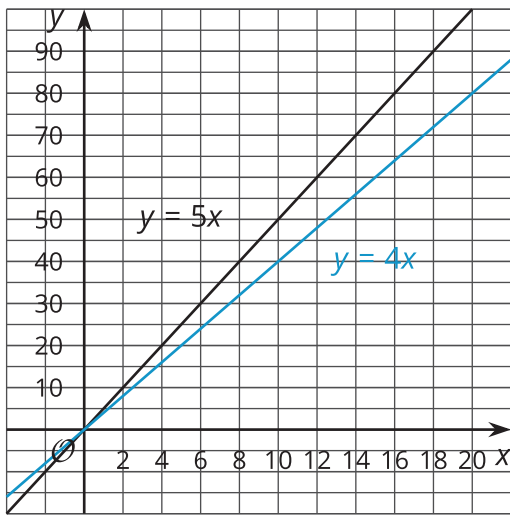


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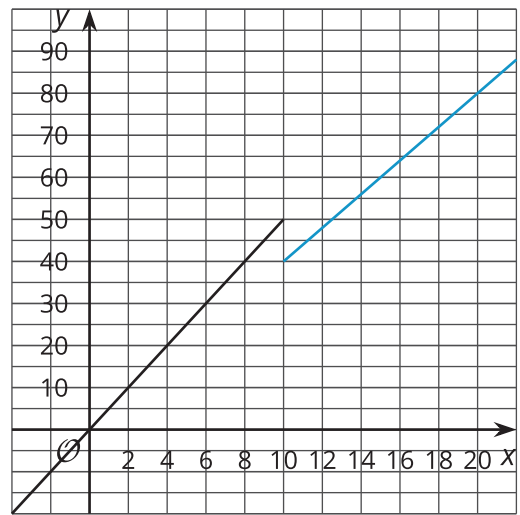


4. A t-shirt company offers deals on bulk purchases. Shirts cost \$5 each if you buy less than 10, and they cost \$4 each if you buy 10 or more. x represents the number of shirts bought, and y represents the cost of shirts in dollars.

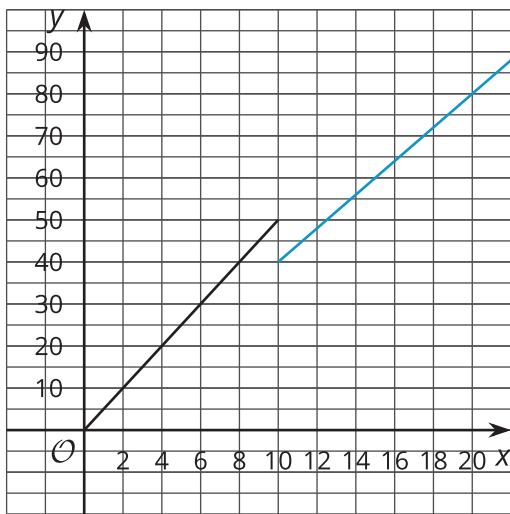
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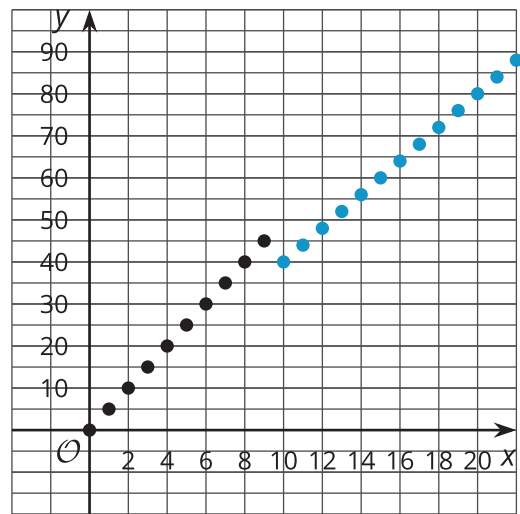
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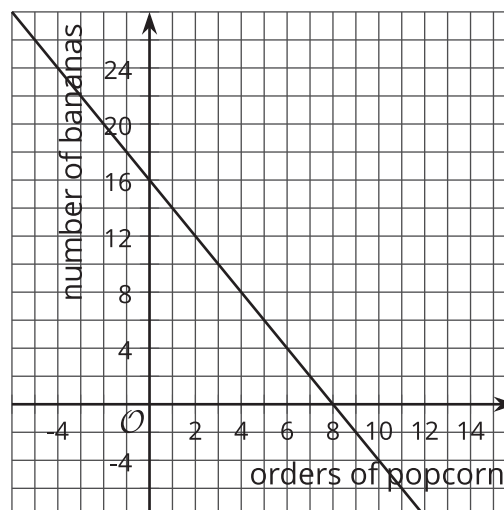


D



7.3 Refining the Representation

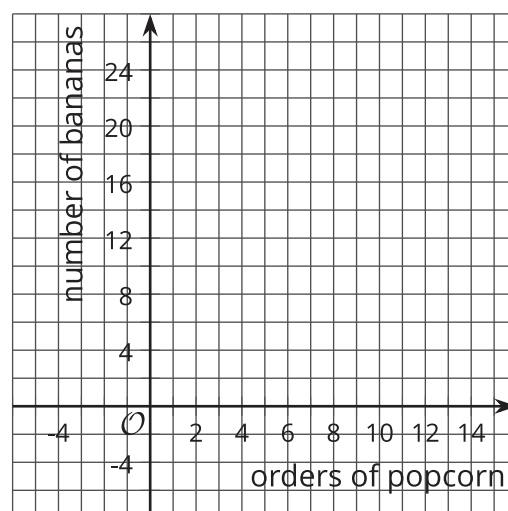
1. At the concession stand, popcorn costs \$2 and bananas cost \$1. Clare spent \$16 on popcorn and bananas for her family.



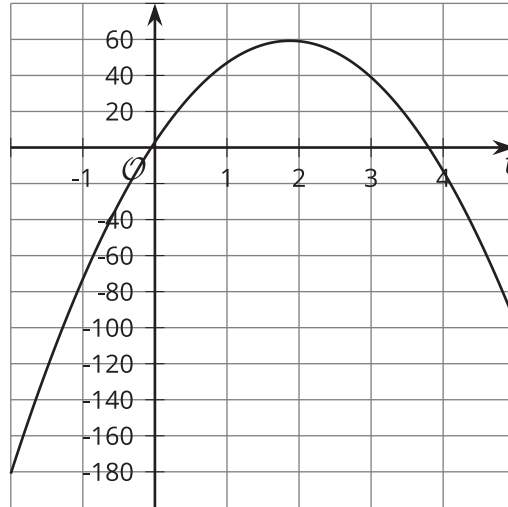
- a. Explain why each of these points on the graph do not make sense in the situation:

- i. $(-2, 20)$
- ii. $(1.5, 13)$
- iii. $(10, -4)$

- b. Sketch a graph that better represents the situation. Explain your reasoning.

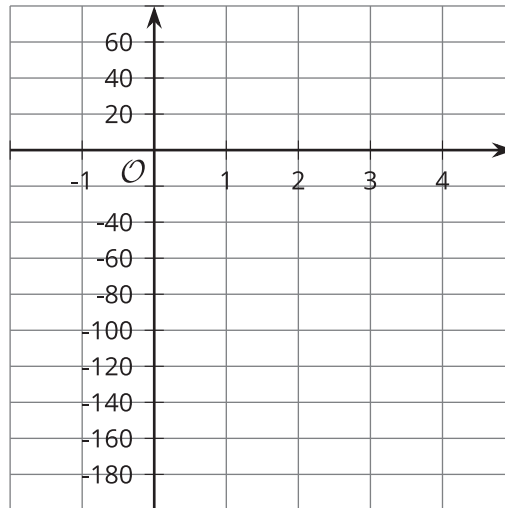


2. The height in feet of a baseball over time, in seconds, is modeled by the function h given by the equation $h(t) = 3 + 60t - 16t^2$. A graph of the function is shown.



- a. Choose two points that are on the graph but do not make sense with the context. Explain your reasoning.

- b. Sketch a graph that better represents the situation.



- c. What point represents the baseball landing on the ground?