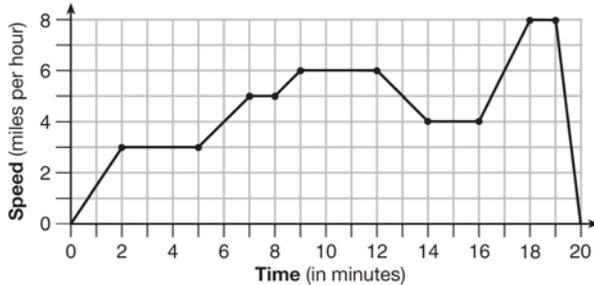


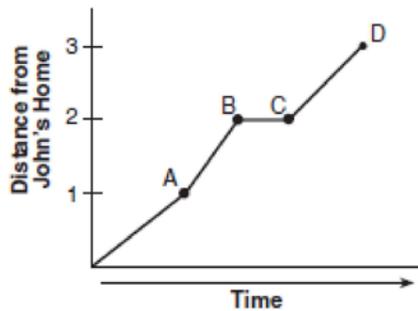
F.IF.B.4: Relating Graphs to Events

- 1 The graph below represents a jogger's speed during her 20-minute jog around her neighborhood.



Which statement best describes what the jogger was doing during the 9 – 12 minute interval of her jog?

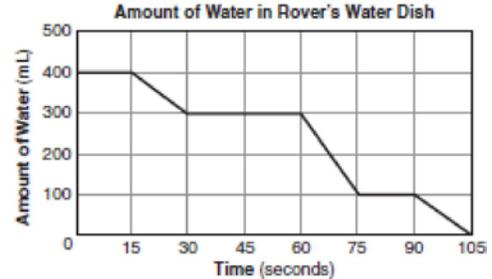
- 1) She was standing still.
 - 2) She was increasing her speed.
 - 3) She was decreasing her speed
 - 4) She was jogging at a constant rate.
- 2 John left his home and walked 3 blocks to his school, as shown in the accompanying graph.



What is one possible interpretation of the section of the graph from point B to point C?

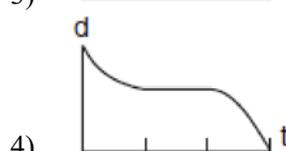
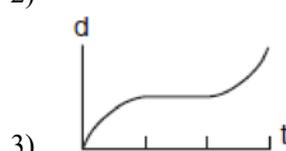
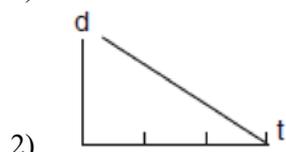
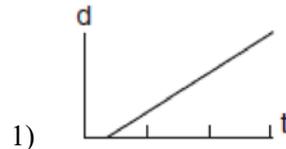
- 1) John arrived at school and stayed throughout the day.
- 2) John waited before crossing a busy street.
- 3) John returned home to get his mathematics homework.
- 4) John reached the top of a hill and began walking on level ground.

- 3 The accompanying graph show the amount of water left in Rover's water dish over a period of time.

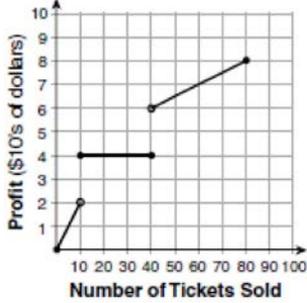


How long did Rover wait from the end of his first drink to the start of his second drink of water?

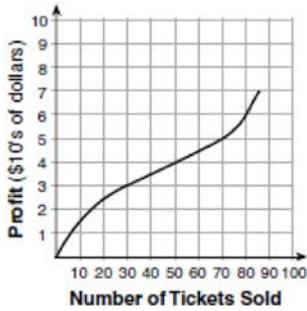
- 1) 10 sec
 - 2) 30 sec
 - 3) 60 sec
 - 4) 75 sec
- 4 A bug travels up a tree, from the ground, over a 30-second interval. It travels fast at first and then slows down. It stops for 10 seconds, then proceeds slowly, speeding up as it goes. Which sketch best illustrates the bug's distance (d) from the ground over the 30-second interval (t)?



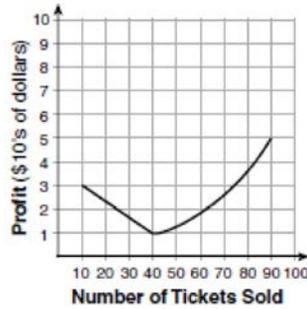
- 5 To keep track of his profits, the owner of a carnival booth decided to model his ticket sales on a graph. He found that his profits only declined when he sold between 10 and 40 tickets. Which graph could represent his profits?



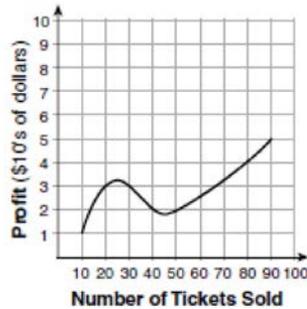
1)



2)

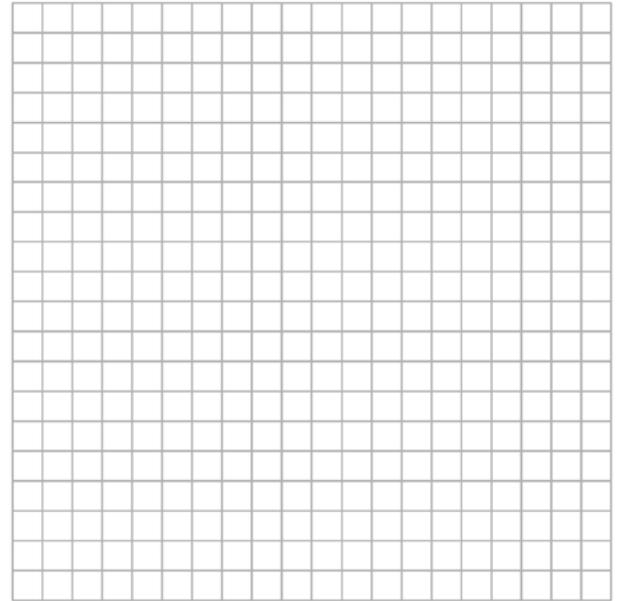


3)



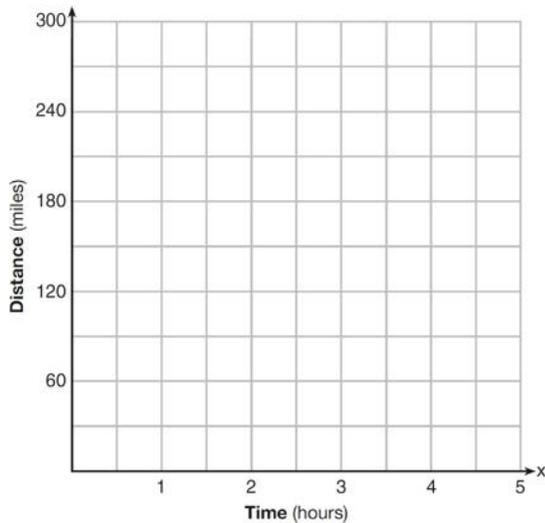
4)

- 6 During a snowstorm, a meteorologist tracks the amount of accumulating snow. For the first three hours of the storm, the snow fell at a constant rate of one inch per hour. The storm then stopped for two hours and then started again at a constant rate of one-half inch per hour for the next four hours.
a) On the grid below, draw and label a graph that models the accumulation of snow over time using the data the meteorologist collected.

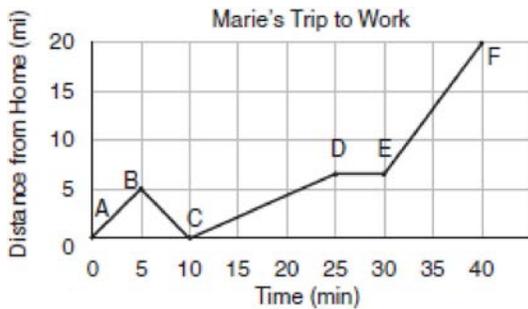


- b) If the snowstorm started at 6 p.m., how much snow had accumulated by midnight?

- 7 A driver leaves home for a business trip and drives at a constant speed of 60 miles per hour for 2 hours. Her car gets a flat tire, and she spends 30 minutes changing the tire. She resumes driving and drives at 30 miles per hour for the remaining one hour until she reaches her destination. On the set of axes below, draw a graph that models the driver's distance from home.

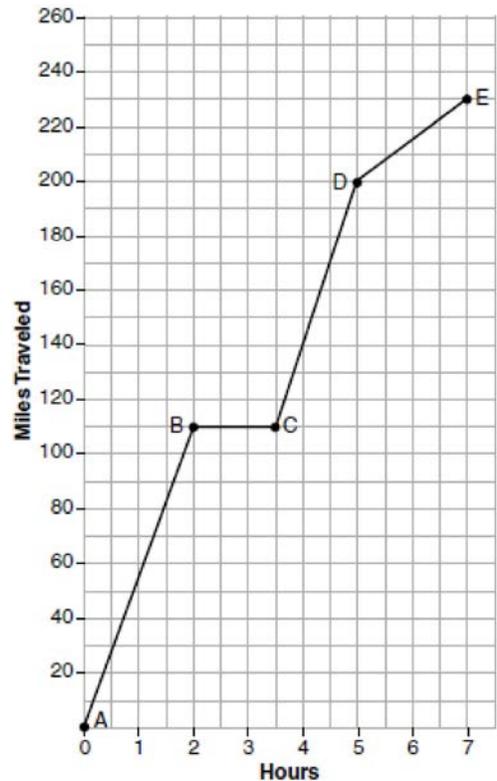


- 8 The accompanying graph shows Marie's distance from home (*A*) to work (*F*) at various times during her drive.



Marie left her briefcase at home and had to return to get it. State which point represents when she turned back around to go home and explain how you arrived at that conclusion. Marie also had to wait at the railroad tracks for a train to pass. How long did she wait?

- 9 The graph below models Craig's trip to visit his friend in another state. In the course of his travels, he encountered both highway and city driving.



Based on the graph, during which interval did Craig most likely drive in the city? Explain your reasoning. Explain what might have happened in the interval between *B* and *C*. Determine Craig's average speed, to the nearest tenth of a mile per hour, for his entire trip.

F.IF.B.4: Relating Graphs to Events**Answer Section**

1 ANS: 4 REF: 061502ai

2 ANS: 2

Between points B and C , John's distance from home remains constant. (2) represents an interpretation in which John's distance remains constant, waiting before crossing a busy street. (1) also represents an interpretation in which John's distance remains constant, but at points B and C , John had not yet arrived at school. In both (3) and (4), John's distance from school is changing.

REF: 010412a

3 ANS: 2

When Rover is drinking, the amount of water in his dish decreases over time. The first decrease ends at 30 seconds and the second decrease begins at 60 seconds. The difference between these points is 30 seconds.

REF: 080410a

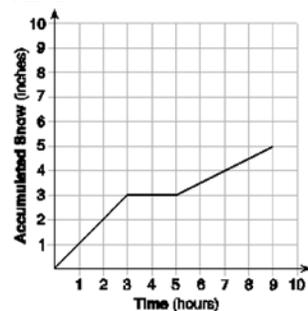
4 ANS: 3

In this sketch, the bug's speed is decreasing during the first third of time, equals 0 during the second third of time and is increasing the last third of time. In (4), the bug is traveling down the tree. In (1) and (2), the bug's speed remains constant.

REF: 060114b

5 ANS: 3 REF: 061701ai

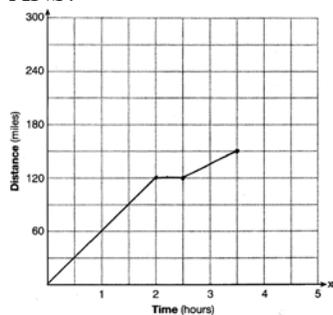
6 ANS:



At 6 hours, $3\frac{1}{2}$ inches of snow have fallen.

REF: spr1307ai

7 ANS:



REF: 081528ai

8 ANS:

B, 5 minutes. At point B, Mary's distance from home begins to decrease, representing the point where she turned back around to go home. The interval between points D and E is the only portion of the graph where Mary's distance from home remains constant. It lasts for 5 mins.

REF: 010121a

9 ANS:

D-E, because his speed was slower. Craig may have stayed at a rest stop during *B-C*. $\frac{230-0}{7-0} \approx 32.9$

REF: 061734ai