Guided Practice

1. Make a line graph of the data. (Example 1)

World's Tropical Rainforests								
Year	1940	1950	1960	1970	1980	1990	2000	2010
Remaining Tropical Rainforests (millions of acres)	2,875	2,740	2,600	2,375	2,200	1,800	1,450	825

World's Tropical Rainforests
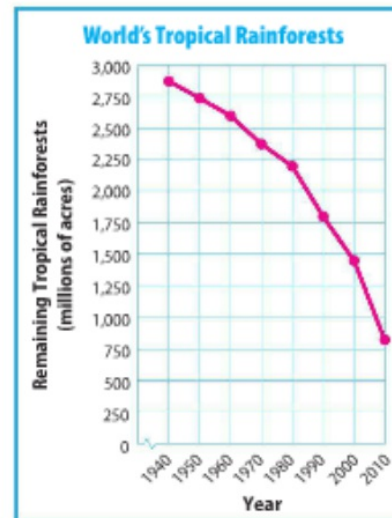
2. Describe the change in the world's remaining rainforests from 1940 to 2010. (Example 1) **Sample answer: The size of the rainforests has rapidly decreased from 1940 to 2010.**

3. Describe the trend in the remaining tropical rainforests.
(Example 2) **Sample answer: The size of the rainforests is decreasing.**

4. Predict how many millions of acres there will be left in 2020.
(Example 2) **about 250 million acres**

5. What does the graph tell you about future changes in the remaining rainforests? (Example 3) **Sample answer: The rainforests are decreasing in size. You can expect this pattern to continue.**

6. Ⓔ **Building on the Essential Question** How can you use line graphs to predict data?

Sample answer: By analyzing the trend and extending the line, you can predict future data.

update your Foldable!

1 Make a line graph of the data. Then describe the change in the total amount Felisa saved from Week 1 to Week 5. (Example 1)

Sample answer: Felisa's total savings

increased slowly for Weeks 1 and 2, then

increased more dramatically for Weeks 3

and 4 with a slower increase for Week 5.

Felisa's Savings	
Week	Total Amount ($)
1	50
2	54
3	75
4	98
5	100

Felisa's Savings

2. Use the graph at the right. (Examples 2–3)

   a. Describe the change in the winning times from 2006 to 2010.
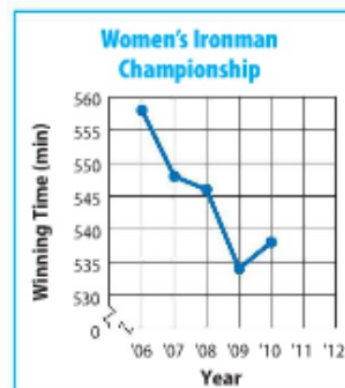
   Sample answer: Most years, the winning times decreased.

   From 2009 to 2010, the winning time increased.

   b. Predict the winning time in 2015. **about 525 min**

   c. Predict when the winning time will be less than 500 minutes.

   about 2019

Women's Ironman Championship

1

Felisa's Savings

Sample answer: Felisa's total savings increased slowly for Weeks 1 and 2, then increased more dramatically for Weeks 3 and 4 with a slower increase for Week 5.
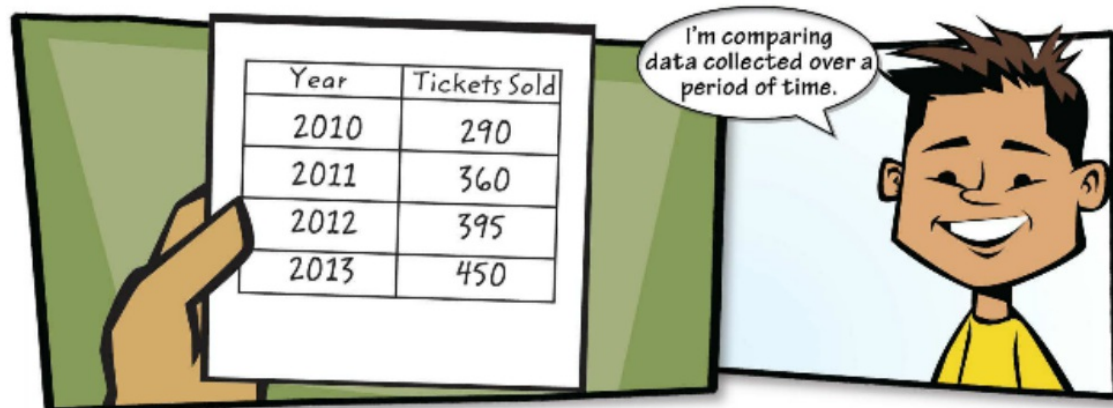
3a.

Ticket Sales

3b. 500 tickets   **5.** Sample answer: If the vertical scale is much higher than the highest value, it makes the graph flatter. Changing the interval does not affect the graph.

Copy and Solve For Exercise 3, show your work on a separate piece of paper.

3. CCSS Model with Mathematics Refer to the graphic novel frame below for Exercises a–b. **See Answer Appendix.**

Year	Tickets Sold
2010	290
2011	360
2012	395
2013	450

I'm comparing data collected over a period of time.

a. Use the information in the table and draw a line graph to show the changes in ticket sales over the past four years.

b. Predict what the ticket sales will be in 2015.

4. Use the graph that shows the distance traveled by two cars on the same freeway headed in the same direction.

Distance Traveled by Two Cars

a. Predict the distance traveled by Car A after 5 hours.

about 260 mi

b. Predict the distance traveled by Car B after 5 hours.

about 250 mi

c. How many miles do you think Car A will have traveled after 8 hours?

about 410 mil

d. Based on the graph, after how many hours will Car B have traveled about 360 miles? about 7 h

e. Based on the graph, which car will reach a distance of 500 miles first? Explain your reasoning. Car B; Car B will reach a distance of 500 miles shortly after 9 hours. It will take Car A shortly under 10 hours to travel 500 miles.
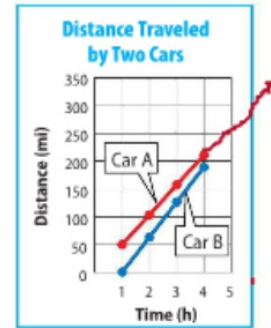
H.O.T. Problems Higher Order Thinking

5. **CCSS** **Justify Conclusions** Can changes to the vertical scale or interval affect the appearance of a line graph? Justify your reasoning with examples.

Sample answer: If the vertical scale is much higher than the highest value, it makes the graph flatter. Changing the interval does not affect the graph.

6. **CCSS** **Persevere with Problems** Refer to the graph for Exercise 4. What can you conclude about the point at which the red and blue lines cross?

Sample answer: The point at which the lines cross represents the time when both cars will have traveled the same distance.

7. **CCSS** **Construct an Argument** Explain why line graphs are often used to make predictions.

Sample answer: Line graphs are often used to make a prediction because they show changes over time and they allow the viewer to see data trends and, thus, make predictions.

8. **CCSS** **Model with Mathematics** Give an example of a set of data that is best represented in a line graph. Then make a line graph that could represent that data.

See students' work.