**SLOPE AND RATE OF CHANGE** You can interpret the slope of a line as a rate of change. When given graphs of real-world data, you can compare rates of change by comparing slopes of lines.

EXAMPLE 6 **Use a graph to find and compare rates of change**

COMMUNITY THEATER A community theater performed a play each Saturday evening for 10 consecutive weeks. The graph shows the attendance for the performances in weeks 1, 4, 6, and 10. Describe the rates of change in attendance with respect to time.
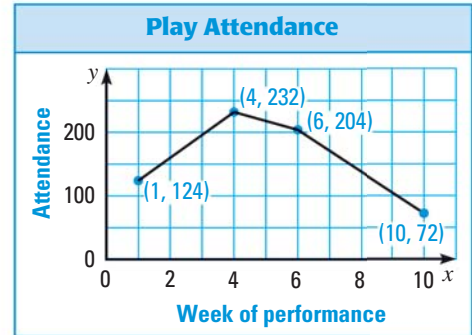
Play Attendance

Solution

Find the rates of change using the slope formula.

INTERPRET RATE OF CHANGE
A negative rate of change indicates a decrease.

Weeks 1–4: $\dfrac{232 - 124}{4 - 1} = \dfrac{108}{3} = 36$ people per week

Weeks 4–6: $\dfrac{204 - 232}{6 - 4} = \dfrac{-28}{2} = -14$ people per week

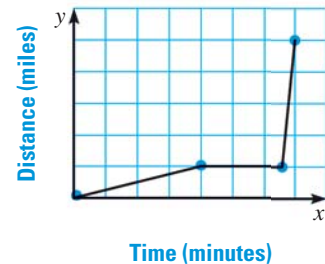**Weeks 6–10:** $\dfrac{72 - 204}{10 - 6} = \dfrac{-132}{4} = -33$ people per week

▶ Attendance increased during the early weeks of performing the play. Then attendance decreased, slowly at first, then more rapidly.

EXAMPLE 7 **Interpret a graph**

COMMUTING TO SCHOOL A student commutes from home to school by walking and by riding a bus. Describe the student's commute in words.

Solution

The first segment of the graph is not very steep, so the student is not traveling very far with respect to time. The student must be walking. The second segment has a zero slope, so the student must not be moving. He or she is waiting for the bus. The last segment is steep, so the student is traveling far with respect to time. The student must be riding the bus.

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✓ **GUIDED PRACTICE** **for Examples 6 and 7**

8. **WHAT IF?** How would the answer to Example 6 change if you knew that attendance was 70 people in week 12?

9. **WHAT IF?** Using the graph in Example 7, draw a graph that represents the student's commute from school to home.