# Functions with Multiple Parts

Let's look at domains that have boundaries.

## 12.1 Notice and Wonder: Ticket Price

What do you notice? What do you wonder?

| age | ticket cost |
|---|---|
| 0–2 | FREE |
| 2–5 | $2.00 |
| 5–12 | $5.00 |
| 13–16 | $7.50 |
| 17–50 | $10.00 |
| 55 and up | $5.00 |

# 12.2 Group Ticket Cost

A community orchestra charges different amounts for tickets to shows based on the age of the person attending. A sign in front of the box office where tickets are sold shows the prices.

| age | ticket cost |
|---|---|
| 0–2 | FREE |
| 3–13 | $4.00 |
| 14–18 | $6.00 |
| 19–25 | $9.00 |
| 26–54 | $10.00 |
| 55 and up | $6.00 |

1. How much does each group need to pay for their tickets?
   a. 2 adults aged 40 and 36, and 2 kids aged 4 and 1

   b. 3 adults aged 74, 37, and 36

   c. 5 adults in their 30s and 25 students aged 15 and 16

   d. 1 adult aged 25 and 4 kids aged 1, 9, 13, and 16

2. A mother arrives and tells the box office clerk that her child is 35 months old. How much should the clerk charge for the child?

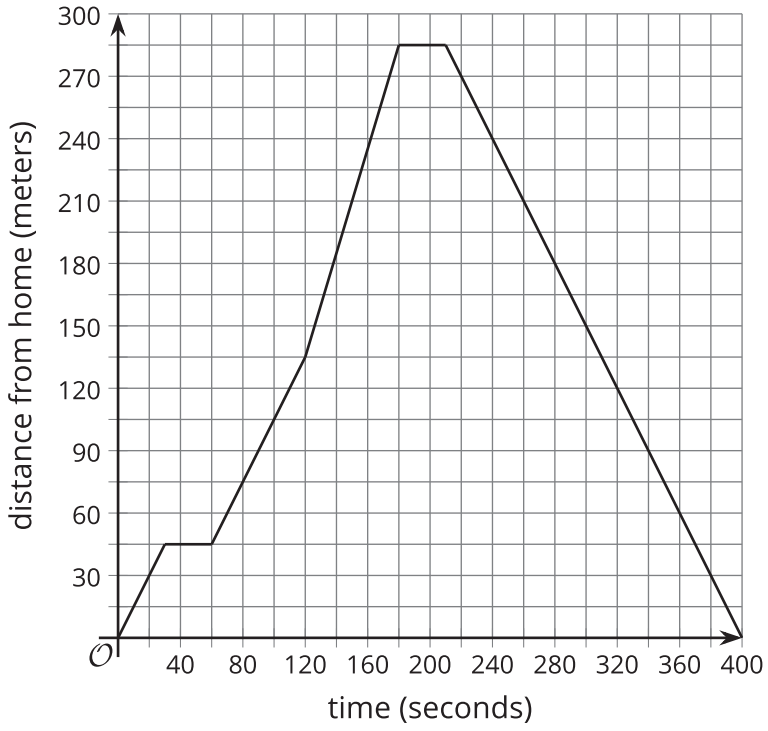
3. If there is a rule that uses the age of a person attending the orchestra concert as the input and outputs the ticket price for that person, is that rule a function? Explain your reasoning.

   a. What is the domain for the rule?

   b. What is the range for the rule?

# 12.3 A Light Trip

1. Noah leaves his home, sometimes running, sometimes walking, sometimes stopping until he remembers that he doesn't have his wallet, then he goes back home. Here is a graph representing his journey.




   a. Describe what is happening on the domain $210 < x < 400$.

   b. What are the domain intervals that represent the times when Noah was running?

   c. What are the domain intervals that represent the times when Noah was stopped?

   d. What are the domain intervals that represent the times when Noah was walking away from home?

2. The amount of light in a room is shown as a function of the number of hours after midnight. Describe what might be happening in the room. Be sure to use intervals within the domain in your description.

