

# Unit 7 Lesson 5: Using Negative Numbers to Make Sense of Contexts

## 1 Notice and Wonder: It Comes and Goes (Warm up)

### Student Task Statement

| activity          | amount |
|-------------------|--------|
| do my chores      | 30.00  |
| babysit my cousin | 45.00  |
| buy my lunch      | -10.80 |
| get my allowance  | 15.00  |
| buy a shirt       | -18.69 |
| pet my dog        | 0.00   |

What do you notice? What do you wonder?

## 2 The Concession Stand

### Student Task Statement

The manager of the concession stand keeps records of all of the supplies she buys and all of the items she sells. The table shows some of her records for Tuesday.

| item         | quantity | value in dollars |
|--------------|----------|------------------|
| doughnuts    | -58      | 37.70            |
| straws       | 3,000    | -10.35           |
| hot dogs     | -39      | 48.75            |
| pizza        | 13       | -116.87          |
| apples       | -40      | 14.00            |
| french fries | -88      | 132.00           |

1. Which items did she sell? Explain your reasoning.
2. How can we interpret -58 in this situation?
3. How can we interpret -10.35 in this situation?
4. On which item did she spend the most amount of money? Explain your reasoning.

## 3 Drinks for Sale

### Student Task Statement

A vending machine in an office building sells bottled beverages. The machine keeps track of all changes in the number of bottles from sales and from machine refills and maintenance. This record shows the changes for every 5-minute period over one hour.

1. What might a positive number mean in this context?  
What about a negative number?
2. What would a "0" in the second column mean in this context?
3. Which numbers—positive or negative—result in fewer bottles in the machine?
4. At what time was there the greatest change to the number of bottles in the machine? How did that change affect the number of remaining bottles in the machine?
5. At which time period, 8:05–8:09 or 8:25–8:29, was there a greater change to the number of bottles in the machine? Explain your reasoning.
6. The machine must be emptied to be serviced. If there are 40 bottles in the machine when it is to be serviced, what number will go in the second column in the table?

| time      | number of bottles |
|-----------|-------------------|
| 8:00–8:04 | -1                |
| 8:05–8:09 | +12               |
| 8:10–8:14 | -4                |
| 8:15–8:19 | -1                |
| 8:20–8:24 | -5                |
| 8:25–8:29 | -12               |
| 8:30–8:34 | -2                |
| 8:35–8:39 | 0                 |
| 8:40–8:44 | 0                 |
| 8:45–8:49 | -6                |
| 8:50–8:54 | +24               |
| 8:55–8:59 | 0                 |
| service   |                   |