

# Lesson 11.1.3

- 11-27.
- a. Each input (push) states to an output.
  - b. Input: possible buttons to push and money; output: possible items to buy.
  - c. No, it's not. You can not predict the output when Lemon Tarts is pushed.
  - d. **As, based on this information, you can predict that every time the *Biasi* is selected, the output will be a *Sanio Biasi*.**
  - e. Yes; Based on this information, you can predict that every time *Slurpees* is selected the output will be a *Lemon Tart*.
  - f. Relations that are functions have a predictable one input value. Relations that are not functions have more than one input, which means unpredictable.

11-28. Typical response for a function is a relation in which each input has only one output.

- 11-29.
- a. No. Button 7 gave 2 outputs.
  - b. Yes, each input has only one output.
  - c. No;  $x = 2$  has two different outputs.
  - d. No; at least one  $x$  value has more than one  $y$  value.
  - e. Yes; each  $x$  value has only one  $y$  value.
  - f. Yes; each  $x$ -value has only one  $f(x)$  value.
  - g. Yes; each input has only one output.

11-30. No, vertical lines are not functions.

11-31. Some possible machines are an ATM machine, a calculator, a radio, etc.

11-32.  $1.5 \approx 0.5$

11-33.  $n = 1, n = -1$

11-34. a.  $-1$       b.  $-1$       c.  $9$       d.  $34$

11-35. a.  $x = 8$  or  $x = -2$       b.  $x = 1$  or  $x = -3$       d.  $x = -5$  or  $x = 1$

11-36. a.  $25a = 5 \cdot 5^2$       b.  $5 \cdot 3^{-1} x = 9.5$

11-37. ~