

Multiplicative Relationship

When a number is placed into the machine, the machine will use a rule to decide what the output should be. Watch as values are placed into the input-output machine. The results are recorded in the table. Four is the value of the input, and 12 is the value of the output. Continue to observe values being placed into the input-output machine, and note any patterns you observe.

This time, seven is the value of the input, and 21 is the value of the output.

This time, three is the value of the input, and nine is the value of the output. What relationship do you notice between the input and the output?

Did this input-output pairing match your observation about the relationship between the input and output?

If the value of the input is a heart, what do you think the value of the output will be? You are correct! The value of the output is three hearts when the input is one heart.

What mathematical rule describes the relationship between the input and output values for this machine? Every input value is multiplied by three to produce the output value. The output value, y , is equal to three times the input value, x . The rule “ y is equal to three times the value of x ” describes a multiplicative relationship.