

## **6.4 Functions and Formulas**

Formulas are equations that use variables which we replace with numbers. They have important applications in business, technology, science, medicine and many other fields. These formulas may be represented mathematically by functions such polynomials, exponentials, etc.

**Example 1** The formula  $E = I^2Rt$  determines the electrical energy in joules,  $E$ , in an electric circuit, where  $I$  is the current in amps,  $R$  is the resistance in ohms and  $t$  is the time in seconds for which the current flows.

- a) Isolate for  $I$ .
- b) Determine the current in the circuit that had an electrical energy of 1600 J with a resistance of  $10\ \Omega$  in 40 seconds.

**Example 2** The formula  $\frac{1}{f} = \frac{1}{a} + \frac{1}{b}$  applies to cameras.  $f$  is the focal length of the lens,  $a$  is the distance from the object to the lens, and  $b$  is the distance from the image to the lens. Solve for  $f$ .