Interpreting Functions

Let's interpret some functions.

4.1 Worked Example: Function Notation

Use the equation $f(x) = 3x - 5$ to find the value of $f(9.2)$.

Step 1:

$$f(9.2) = 3 \cdot 9.2 - 5$$

Step 2:

$$f(9.2) = 27.6 - 5$$

Step 3:

$$f(9.2) = 22.6$$

4.2 It's Getting Hotter



A machine in a laboratory is set to steadily increase the temperature inside. The temperature, in degrees Celsius, inside the machine after being turned on is a function of time, in seconds, given by the equation $f(t) = 22 + 1.3t$.

1. What does $f(3)$ mean in this situation?

2. Find the value of $f(3)$ and interpret that value.

3. What does the equation $f(t) = 35$ mean in this situation?

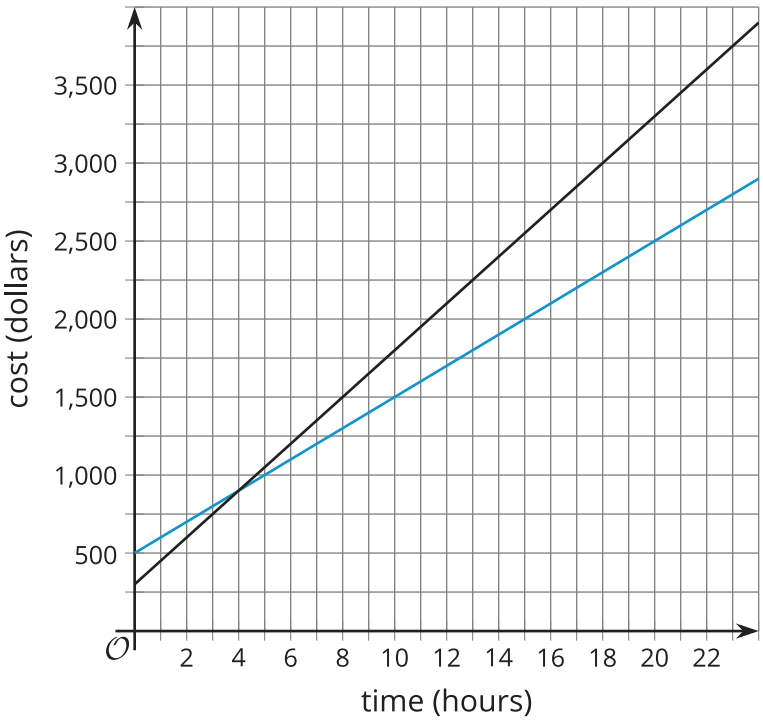
4. Solve the equation to find the value of t for the previous question.

5. Write an equation involving f that represents each of these situations:
   a. the temperature in the machine 30 seconds after it is turned on

   b. the time when the temperature inside the machine is 100 degrees Celsius

4.3 You Charge How Much?

Two companies charge to rent time using their supercomputers. Their fees are given by the equations $f(t) = 500 + 100t$ and $g(t) = 300 + 150t$. The lines $y = f(t)$ and $y = g(t)$ are graphed.



1. Which line represents $y = f(t)$? Explain how you know.

2. The lines intersect at the point $(4, 900)$. What does this point mean in this situation?

3. Which is greater, $f(10)$ or $g(10)$? What does that mean in this situation?

4. Your group has $1,500 to spend on supercomputer time. Which company should your group use?

   a. Use the equations to explain or show your reasoning.

   b. Use the graph to explain or show your reasoning.