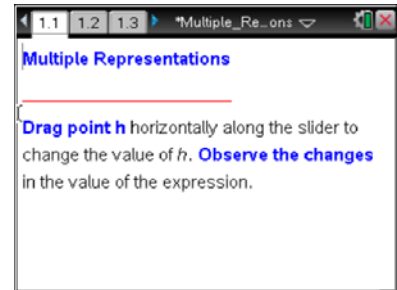




Open the TI-Nspire document *Multiple_Representations.tns*.

Graphs, tables, and formulas can represent algebraic relationships. In this activity, you will use all three to investigate how a student's spending money is related to allowance and earnings.



Move to page 1.2.

Press **ctrl** **▶** and **ctrl** **◀** to navigate through the lesson.

Problem Situation: Tricia is a 17-year old student who receives an income from a weekly allowance and also works a part-time job paid at an hourly rate. She always receives her allowance, but on her job she can work any whole number of hours from 0 to 20 hours a week. The TI-Nspire™ document shows three representations of Tricia's possible income for one week depending on the number of hours she works.

1. Move h to zero, and press **ctrl** **.** once. What do you observe about the three representations?
2. Move h to eight, and press **ctrl** **.** once. Move h to another value, and press **ctrl** **.** once. Repeat. What do you observe about the three representations?
3. What do h and $i(h)$ represent? Where do h and $i(h)$ appear in each representation?
4. Using your answer from question #3, how much would Tricia earn if she works eight hours? Where does this appear in each of the three representations?
5.
 - a. What is Tricia's allowance, and how can you identify this in each of the three representations?
 - b. What is Tricia's hourly rate, and how can you identify this in each of the three representations?



- c. Why do the points in the graph fall on a straight line?
6. Can Tricia's income be \$75 in one week? Explain.
7. Can Tricia earn \$400 in one week? Explain.
8. Why can you only move from 0 to 20 on the horizontal axis? What does this condition mean for each of the three representations?
9. Is it possible for Tricia to have an income of \$0? Why or why not?
10. Suppose Tricia's parents increase her weekly allowance by \$5. Describe how this increase in allowance would affect each of the representations.
11. Suppose Tricia gets a one dollar per hour raise. Describe how this increase in her hourly rate would affect each of the representations.
12. What do you think are the strengths and weaknesses of each type of representation?