

Understanding Linear Equations and Intercept Form

Maria starts her exercise routine by jogging to the gym. Her trainer says this activity burns 215 calories. Her workout at the gym is to pedal a stationary bike. This activity burns 3.8 calories per minute.

Pedaling time (min) X	Total calories burned y
0	215
1	
2	
20	
30	
45	
60	

Step 1: Use calculator lists to write a recursive routine to find the total number of calories Maria has burned after each minute she pedals the bike. Include the 215 calories she burned on her jog to the gym.

Step 2: Copy and complete the table using your recursive routine.

Step 3: After 20 minutes of pedaling, how many calories has Maria burned? How long did it take her to burn 443 total calories?

Step 4: Write an expression to find the total calories Maria has burned after 20 minutes of pedaling. Check that your expression equals the value in the table.

Step 5: Write and evaluate an expression to find the total calories Maria has burned after pedaling 38 minutes. What are the advantages of this expression over a recursive routine?

Step 6: Let x represent the pedaling time in minutes, and let y represent the total number of calories Maria burns. Write an equation relating time to total calories burned.

Step 7: Check that your equation produces the corresponding values in the table.

Step 8: Plot the points from your table on your calculator. Then enter your equation into the Y menu. Graph your equation to check that it passes through the points. Give two reasons why drawing a line through the points realistically models this situation.

Step 9: Substitute 538 for y in your equation to find the elapsed time required for Maria to burn a total of 538 calories. Explain your solution process. Check your result.

Step 10: How do the starting value and the rule of your recursive routine show up in your equation? How do the starting value and the rule of your recursive routine show up in your graph? When is the starting value of the recursive routine also the value where the graph crosses the y -axis?