Name: **Date:**

Station Activities: Comparing Linear Models

Station 1

You will be given a ruler and graph paper. Work together to analyze data from the real-world situation described, then, as a group, answer the questions.

> Keri is going to get a new cell phone and she has to choose between two cell phone companies. 5-Bars Phone Company charges $50 per month. The company charges an additional $0.60 per minute if a customer uses more than the monthly number of minutes included in the plan. Stellular Phone Company charges $70 per month. This company charges an additional $0.20 per minute if a customer uses more than the monthly number of minutes included in the plan. Both companies' plans include the same number of minutes each month.

Let x represent the minutes used that exceeded the plan. Let y represent the cost of the plan.

1. Write an equation that represents the monthly cost of 5-Bars Phone Company's plan.

Complete the table by selecting values for x and calculating y.

Minutes (x)					
Cost in $ (y)					

Use your graph paper to graph the ordered pairs. Use your ruler to draw a straight line through the points and complete the graph.

2. Write an equation that represents the monthly cost of Stellular Phone Company's plan.

Complete the table by selecting values for x and calculating y.

Minutes (x)					
Cost in $ (y)					

On the same graph you created for problem 1, plot the ordered pairs. Use your ruler to draw a straight line through the points and complete the graph.

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Use your graph from problems 1 and 2 to answer the following questions.

3. Which plan should Keri choose if she uses 30 minutes of extra time each month? Explain.

4. Which plan should Keri choose if she uses 80 minutes of extra time each month? Explain.

5. At what number of extra minutes per month would it not matter which phone plan Keri chooses since the cost would be the same? Explain.

6. If the equations for the two cell phone plans were solved as a system of equations, what would be the solution? Explain.

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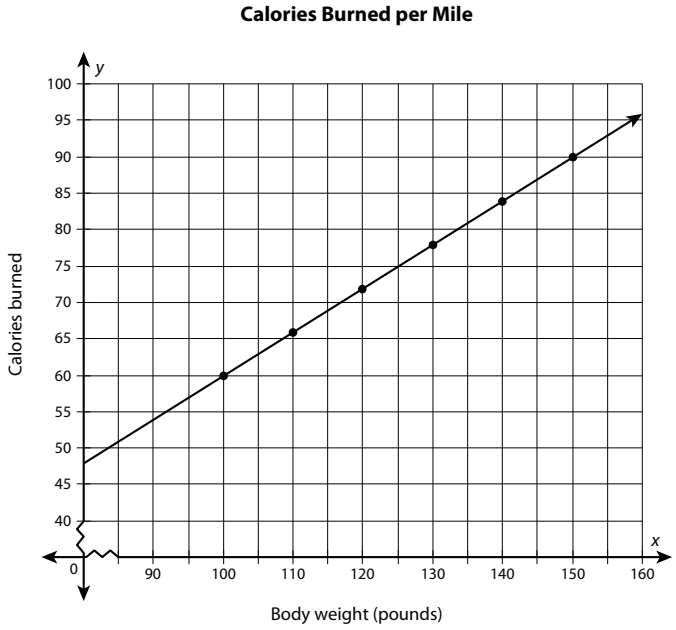
Station 2

The equation $y = 0.6x$ represents the number of calories (y) that a runner burns per mile based on the runner's body weight of x pounds.



For each weight given, use the graph to find the number of calories burned per mile.

1. 100 pounds

2. 115 pounds

3. 135 pounds

For each given number of calories burned per mile, use the graph to find the matching weight of the person.

4. 75 calories burned

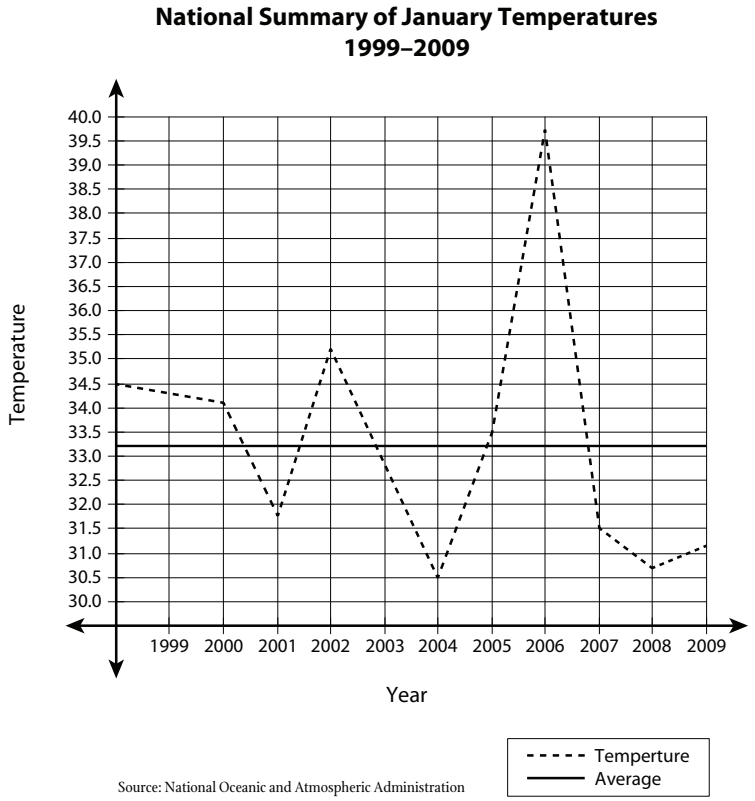
5. 90 calories burned

6. If you didn't know the equation of this graph, how could you use the graph to find the equation of the line? Explain.

Name: **Date:**

Station 3

NOAA Satellite and Information Service created the following graph, which depicts the U.S. National Summary of the temperature in January from 1999–2009.



Source: National Oceanic and Atmospheric Administration

1. Between which consecutive years did the United States see the greatest increase in average temperature change in January?

2. What strategy did you use to answer problem 1?

continued

3. Between which consecutive years did the United States see the greatest decrease in average temperature change in January?

4. What strategy did you use to answer problem 3?

5. Between which consecutive years was the temperature change represented as a negative slope? Explain.

6. Between which consecutive years was the temperature change represented as a positive slope? Explain.

Name: **Date:**

Station 4

You will work with a linear function at this station.

Use the given linear function for the following problems.

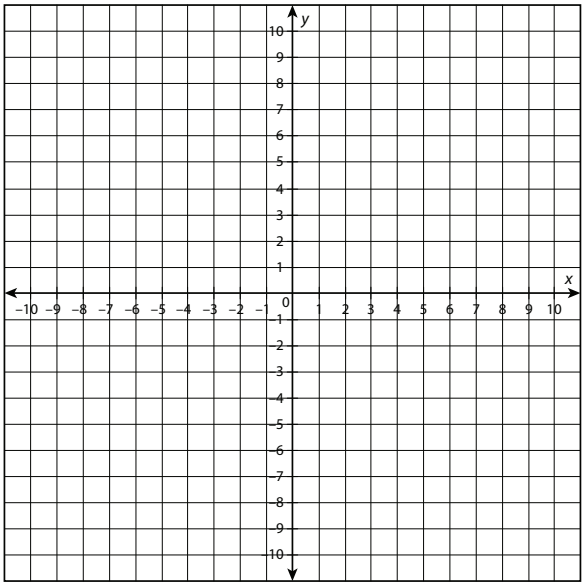
$f(x) = x + 3$

1. Create a table of values for the function.

x	$f(x)$

2. Find the x- and y-intercepts.

3. Graph the function on the coordinate plane.



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4. Looking at the equation, what is a defining characteristic of a linear function?

5. Looking at the table of values, what is a defining characteristic of a linear function's table of values?

6. Looking at the graph, what is a defining characteristic of a linear function's graph?