"I Can Use the Information Presented in a Table, Graph, or Equation to Interpret Rates in Real-World Contexts."

Comparing Rates Using Tables, Graphs and Equations

Sarah and Eva were swimming. Use the ratio tables below to determine who the faster swimmer is.

Sarah

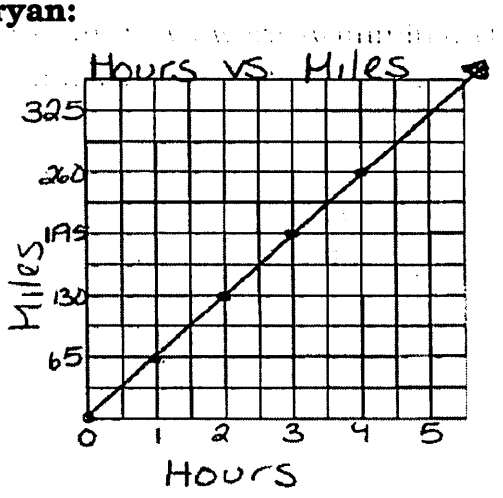
Time (min)	3	5	12	17
Distance (meters)	75	125	300	425

Eva

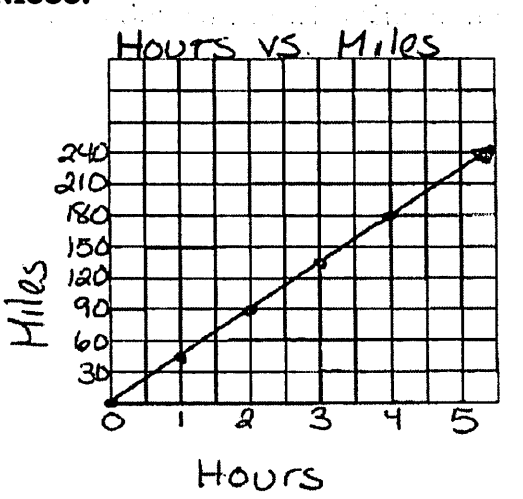
Time (min)	2	7	10	20
Distance (meters)	52	182	260	520

Bryan and ShaNiece are both traveling in their cars at a constant rate. Which one is going fastest?

Bryan:



ShaNiece:



Claire, Kate and Jessica are entering a cup stacking contest. All three girls have the same strategy: stack the cups at a constant rate so that they do not slow down at the end of the race. Based on the equations where c = the number of stacked cups and t = time in seconds, which girl stacks the cups the fastest?

Claire: $c = 4t$ **Kate:** $c = 7t$ **Jessica:** $c = 5t$

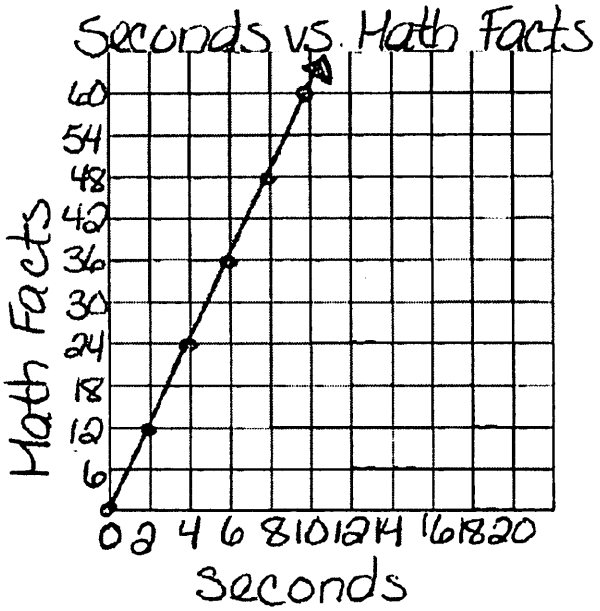
1. Kiara, Giovanni, and Ebony are triplets and always argue over who can answer basic math facts the fastest. After completing a few different math minutes, Kiara, Giovanni, and Ebony recorded their data, which is shown below.

Kiara: $m = 5t$ where $t =$ time in seconds and $m =$ number of math facts completed

Giovanni:

Seconds	5	10	15
Math Facts	20	40	60

Ebony:



a. What is the math fact completion rate for each student?

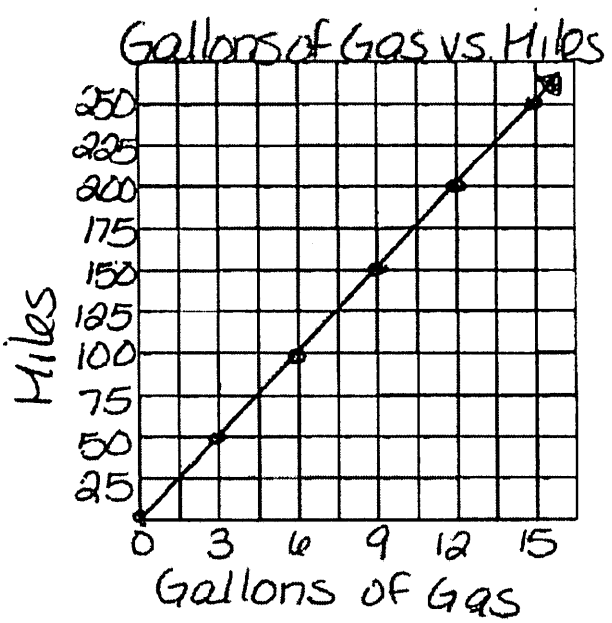
b. Who would win the argument? How do you know?

2. **Victor was having a hard time deciding on which new vehicle he should buy. He decided to make the final decision based on the gas efficiency of each car. A car that is more gas efficient gets more miles per gallon of gas. When he asked the manager at each car dealership for the gas mileage data, he received two different representations, which are shown below.**

Vehicle 1: Legend

Gallons of Gas	4	8	12
Miles	72	144	216

Vehicle 2: Supreme



a. **If Victor based his decision only on gas efficiency, which car should he buy? Provide support for your answer.**

b. **After comparing the Legend and the Supreme, Victor saw an advertisement for a third vehicle, the Lunar. The manager said that the Lunar can travel about 289 miles on a tank of gas. If the gas tank can hold 17 gallons of gas, is the Lunar Victor's best option? Why or why not?**

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Sarah and Eva were swimming. Use the ratio tables below to determine who the faster swimmer is.

Sarah

Time (min)	3	5	12	17
Distance (meters)	75	125	300	425

$\frac{75 \text{ meters}}{3 \text{ min}} = 25 \text{ meters per minute}$

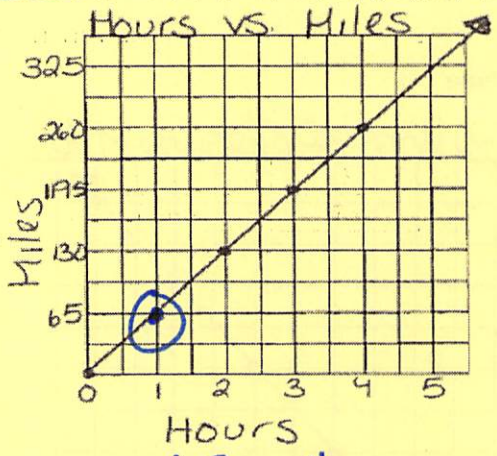
Eva

Time (min)	2	7	10	20
Distance (meters)	52	182	260	520

$\frac{52 \text{ meters}}{2 \text{ min}} = 26 \text{ meters per minute}$

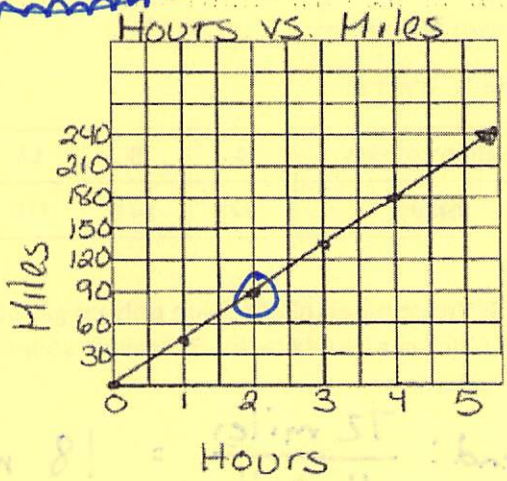
Bryan and ShaNiece are both traveling in their cars at a constant rate. Which one is going fastest?

Bryan:



$\frac{65 \text{ miles}}{1 \text{ hr}} = 65 \text{ mph}$

ShaNiece:



$\frac{90 \text{ mi}}{2 \text{ hr}} = 45 \text{ mph}$

Claire, Kate and Jessica are entering a cup stacking contest. All three girls have the same strategy: stack the cups at a constant rate so that they do not slow down at the end of the race. Based on the equations where c = the number of stacked cups and t = time in seconds, which girl stacks the cups the fastest?

Claire: $c = 4t$ — 4 cups per second

Kate: $c = 7t$ — 7 cups per second

Jessica: $c = 5t$ — 5 cups per second

1. Kiara, Giovanni, and Ebony are triplets and always argue over who can answer basic math facts the fastest. After completing a few different math minutes, Kiara, Giovanni, and Ebony recorded their data, which is shown below.

Kiara: $m = 5t$ where t = time in seconds and m = number of math facts completed

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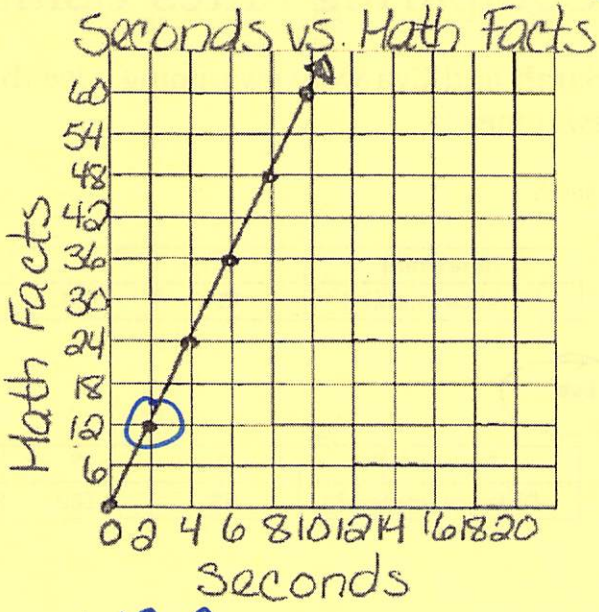

a. What is the math fact completion rate for each student?

Kiara: 5 facts per second

Giovanni: $\frac{20 \text{ facts}}{5 \text{ sec}} = 4$ facts per second

Ebony: $\frac{12 \text{ facts}}{2 \text{ sec}} = 6$ facts per second

b. Who would win the argument? How do you know?

Giovanni has the fastest rate!

2. Victor was having a hard time deciding on which new vehicle he should buy. He decided to make the final decision based on the gas efficiency of each car. A car that is more gas efficient gets more miles per gallon of gas. When he asked the manager at each car dealership for the gas mileage data, he received two different representations, which are shown below.

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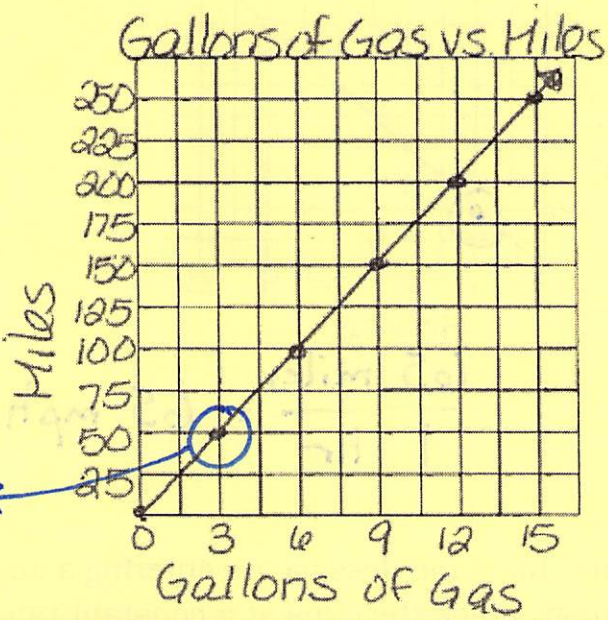

a. If Victor based his decision only on gas efficiency, which car should he buy? Provide support for your answer.

Legend: $\frac{72 \text{ miles}}{4 \text{ gallons}} = 18$ mi/gal

Supreme: $\frac{50 \text{ miles}}{3 \text{ gallons}} = 16.6$ mi/gal

b. After comparing the Legend and the Supreme, Victor saw an advertisement for a third vehicle, the Lunar. The manager said that the Lunar can travel about 289 miles on a tank of gas. If the gas tank can hold 17 gallons of gas, is the Lunar Victor's best option? Why or why not?

Lunar: $\frac{289 \text{ miles}}{17 \text{ gallons}} = 17$ mi/gallon

Legend is still best option!