Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

UNIT 4 LESSON 2

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| AIM: | SWBAT solve problems involving ratios |

**THINK ABOUT IT!**

Ms. Allen is making some Country Time Pink Lemonade by mixing the lemonade mix and water. The directions say that she has to use 2 tablespoons of lemonade mix for every 3 tablespoons of water.

1. Write a ratio to represent the directions for making the lemonade
2. If Ms. Allen wants to use six tablespoons of lemonade mix to make a bigger batch of lemonade, how many tablespoons of water does she have to use to stick to the recipe? Explain why your answer makes sense.

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**Test the Conjecture**

*Test the Conjecture #1)* Mason and Laney ran miles to train for the long-distance running team. The ratio of the number of miles Mason ran to the number of miles Laney ran was 4 to 3. If Laney ran 12 miles, how far did Mason run?

*Test the Conjecture #2)* Shanni and Mel are using ribbon to decorate a project in their art class. The ratio of the length of Shanni’s ribbon to the length of Mel’s ribbon is 7:3 inches. How long is Shanni’s ribbon if Mel’s ribbon is 21 inches long?

Conjecture

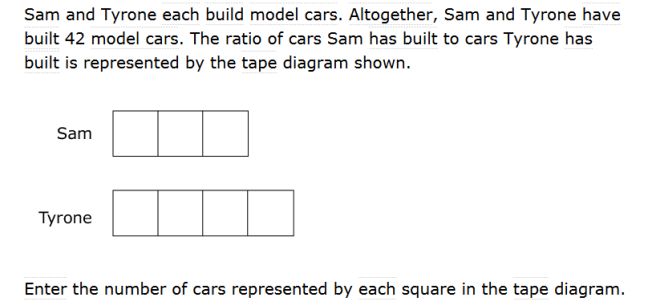
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| Equivalent \_\_\_\_\_\_\_\_\_\_\_\_ represent the same relationship. |

**PARTNER PRACTICE**

* CFS for top quality work
  + Problem is annotated with margin notes to provide additional meaning
  + Tape diagram is drawn accurately and is clearly labeled
  + Equivalent ratio is written
  + Answer statement is written

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| *Bachelor Level* |

1. Sam and Tyrone each build model cars. The ratio of cars Sam has built to cars Tyrone has built is represented by the tape diagram shown below.



1. What is the ratio of the cars Sam has built to the cars Tyrone has built?
2. How many cars did Tyrone build if Sam built 48 model cars?
3. How many cars did Sam build if Tyrone built 48 model cars?
4. Sam says that your answers for b and c should be the same. Do you agree or disagree with Sam? Why?

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1. Boys and girls at school are dressing up for Wacky Tacky day. For every 8 boys wearing neon blue, there are 12 girls wearing neon blue. If there are 32 boys in total wearing neon blue, how many girls are wearing neon blue?

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| *Master Level* |

3) For each pair of ratios below, draw a tape diagram to find the value of the variable to make the two ratios equal.

* 1. 2 : 3 = 8 : x
  2. 4 : 3 = 20 : x
  3. 7 : 2 = y : 12

**INDEPENDENT PRACTICE**

* CFS for top quality work
  + Problem is annotated with margin notes to provide additional meaning
  + Tape diagram is drawn accurately and is clearly labeled
  + Equivalent ratio is written
  + Answer statement is written

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| *Bachelor Level* |

1. Mrs. Kurtz is baking pies. For every 2 cups of flour, she uses 3 cups of sugar. How many cups of sugar will she need if she uses 28 cups of flour?

1. To make plaster, Kevin mixes 3 cups of water with 4 pounds of plaster powder. How much water will he mix with 20 pounds of powder?
2. Write two ratios that are equivalent to 3:5. Use a model to prove that each ratio is equivalent.

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| *Master Level* |

1. For each pair of ratios below, draw a tape diagram to find the value of the variable to make the two ratios equal.
   1. 9 : 4 = 27 : w
   2. 13 : 6 = x : 30
2. Explain how you know that the two ratios in part B are equivalent.

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1. In a bag of mixed walnuts and cashews, the ratio of number of walnuts to number of cashews is 5:6. There are 120 cashews in the bag. Dominique thinks that there are 144 walnuts in the bag. Is she correct? How do you know?

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7) Use the rectangle below to answer the following questions

Width

Length

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* 1. What is the ratio of the length of the rectangle to the width?
  2. If each square in the grid has a side length of 8 mm, what is the area of the rectangle?
  3. If each square in the grid has a side length of 12 mm, what is the perimeter of the rectangle?

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| *PhD Level* |

1. Allison is saving to buy a $500 bicycle by working during summer vacation.
   * The job pays her $16 for every 2 hours worked.
   * Allison works exactly 20 hours each week.

If she works for 4 weeks and buys the bicycle, how much money will she have leftover?

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* CFS for top quality work
  + Problem is annotated with margin notes to provide additional meaning
  + Tape diagram is drawn accurately and is clearly labeled
  + Equivalent ratio is written
  + Answer statement is written

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXIT TICKET**

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| Self-assessment | I mastered the learning objective today. | I am almost there. | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there. | You need more practice and feedback. |

Pam and her brother both open savings accounts. Each begins with a balance of zero dollars. For every two dollars that Pam saves in her account, her brother saves five dollars in his account

1. Determine a ratio to describe the money in Pam’s account to the money in her brother’s account.
2. If Pam has 40 dollars in her account, how much money does her brother have in his account? Use a model to depict the problem and solution.
3. Create another possible ratio that describes the relationship between the amount of money in Pam’s account and the amount of money in her brother’s account. Draw a model to prove that the ratio accurately describes the relationship.