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

UNIT 4 LESSON 3

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| AIM: | SWBAT solve problems using tape diagrams |

**THINK ABOUT IT!**

Brandon asked Mr. Kaiser how lower school students get to school each morning. Students either ride the bus or walk. He found that for every 5 students who ride a bus, there are 2 students who walk. Use a model to answer the two questions below.

1. If there are 100 students who ride the bus, how many students walk?
2. How many total students are there in lower school?

Key Point

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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be used to model and solve \_\_\_\_\_\_\_\_\_\_\_\_ problems involving parts and totals |

**Interaction with New Material**

**Ex. 1)** A County Superintendent of Highways is interested in the numbers of different types of vehicles that regularly travel within his county. In the month of August, a total of 192 registrations were purchased for passenger cars and pickup trucks at the local Department of Motor Vehicles (DMV). The DMV reported that in the month of August, for every 5 passenger cars registered, there were 7 pickup trucks registered. How many of each type of vehicle were registered in the county in the month of August?

**PARTNER PRACTICE**

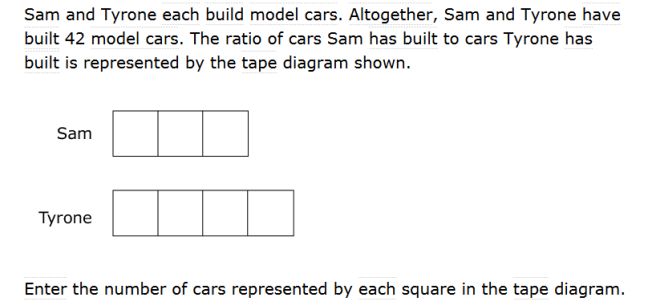
* CFS for top quality work
  + Problem is annotated with margin notes to provide additional meaning
  + Tape diagram is drawn accurately and is clearly labeled
  + Calculations are shown
  + Answer statement is written

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| *Bachelor Level* |

1. John is making trail mix based on a recipe that combines 6 cups of nuts with 5 cups of granola. John has 36 cups of nuts.
   1. How many cups of granola does he have?
   2. How many cups of trail mix does he have?
2. The ratio of sports cards collectors in a club to toy collectors in a club is 10 to 8. If there are 140 sports card collectors in the club, how many people are in the club all together?

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| *Master Level* |

1. Sam and Tyrone each build model cars. The two of them built a total of 42 model cars. The ratio of cars Sam has built to cars Tyrone has built is represented by the tape diagram shown below.



How many model cars did each of them build?

1. Kate can run 2 miles in 23 minutes. At this rate, how long will it take her to run 10 miles?

Is it possible to represent this problem using a tape diagram? Why or why not?

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**INDEPENDENT PRACTICE**

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  + Answer statement is written

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| *Bachelor Level* |

1. A cashier sells 7 DVDs for every 3CDs she sells. How many total disks does the cashier sell if she sells 63 DVDs?
2. At the Endeavor Middle School store last month, they sold 8 pencils for every 5 pens. If the school store managers sold 176 pencils last month, how many pencils and pens did they sell in all?

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| *Master Level* |

1. At Elm City Middle School, the ratio of the number of people who own a smartphone to the number of people who own a flip phone is 4:1. The total number of people at Elm City is 180. How many people own a smartphone and how many own a flip phone?
2. Ms. Johnson and Ms. Siple were folding report cards to send home to parents. The ratio of the number of report cards Ms. Johnson folded to the number of report cards Ms. Siple folded is 2:3. At the end of the day, Ms. Johnson and Ms. Siple folded a total of 300 report cards. Who sold more report cards and by how many?
3. The student-to-faculty ratio at a small college is 17:3. The total of students and faculty is 740. Select all of the statements below that are true:

a) There are 20 total students and faculty members

b) There are more students than faculty members

c) There are 37 faculty members in total

d) There are 518 more students than faculty members

e) There are 111 faculty members

1. Last year, the Boston Red Sox sold out more games than they didn’t sell out with a ratio of 3:1. This year, they want the ratio of games they sell out to games they do not sell out to be 6:1. If there are 168 games in a season, how many more games do they want to sell out this year than last year?

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| *PhD Level* |

1. The Speedy Fast Ski Resort has started to keep track of the number of skiers and snowboarders who bought season passes. The ratio of the number of skiers who bought season passes to the number of snowboarders who bought season passes is 1:2. If 1,250 more snowboarders bought season passes than skiers, how many snowboarders and how many skiers bought season passes?

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

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**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. |

1. The ratio of Isabella’s money to Shane’s money is 3:11. If Isabella has $33, how much money do Shane and Isabella have together? Use diagrams to illustrate your answer.
2. When Carla looked out at the school parking lot, she noticed that for every 2 minivans, there were 5 other types of vehicles. There are 161 vehicles in the parking lot. Read each statement below and decide if it is true or false based on the given information.

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| --- | --- | --- |
|  | True? | False? |
| More vehicles are minivans than other types of vehicles |  |  |
| There are 23 minivans |  |  |
| There are 46 minivans |  |  |
| 175 of the cars are other types of vehicles |  |  |