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

UNIT 4 LESSON 5

|  |  |
| --- | --- |
| AIM: | SWBAT solve problems using tape diagrams |

**THINK ABOUT IT!**

The Holiday Inn caters to people who travel for different types of business trips.

On Saturday night there is not a lot of business travel, so the ratio of the number of occupied rooms to the number of unoccupied rooms is 2:5. If the Holiday Inn had 360 unoccupied rooms on Saturday night, how many rooms were occupied?

On Sunday night, the ratio of the number of occupied rooms to the number of unoccupied rooms changed to be 6:1 due to the number of business people attending a large conference in the area. How many occupied rooms were there on Sunday night?

Key Point

|  |
| --- |
|  |

**Interaction with New Material**

**Ex. 1)** Peter is trying to work out by completing sit-ups and push-ups in order to gain muscle mass. Originally, Peter was completing five sit-ups for every three push-ups, but then he injured his shoulder. After the injury, Peter completed the same amount of exercises as he did before his injury, but completed seven sit-ups for every one push-up. During a training session before his injury, Peter completed twenty-seven push-ups. How many more sit-ups was he completing after his injury than before?

**PARTNER PRACTICE**

|  |
| --- |
| *Bachelor Level* |

1. Tom and Rob are brothers who like to make bets about the outcomes of different contests between them.
   1. Before the last bet, the ratio of the amount of Tom’s money to the amount of Rob’s money was 4:7. If Rob had $427, how much money did Tom have?
   2. Rob lost the latest competition, and now the ratio of the amount of Tom’s money to the amount of Rob’s money is 8:3. How much money does Rob have now that he lost the bet?

|  |
| --- |
| *Master Level* |

1. A sporting goods store ordered new bikes and scooters. For every 3 bikes ordered, 4 scooters were ordered. However, bikes were way more popular than scooters, so the store changed its next order. The new ratio of the number of bikes ordered to the number of scooters ordered was 5:2. If the same amount of sporting equipment was ordered in both orders and 64 scooters were ordered originally, how many bikes were ordered as part of the new order?
   1. 32
   2. 48
   3. 64
   4. 80

**INDEPENDENT PRACTICE**

|  |
| --- |
| *Bachelor Level* |

1. Part A) During first semester, the ratio of the number of students in art class to the number of students in gym class was 2:7. How many students were in the gym class if there were 32 students in art class?

Part B) On account of the art classes being really small and the gym classes being so large, the principal changed students’ classes for the second semester. In second semester, the ratio of the number of students in art class to the number of students in gym class was 5:4. How many students were in art class and gym class for the second semester?

Part C) How many more students were in art class during the second semester than the first semester?

|  |
| --- |
| *Master Level* |

1. Jeanette wants to save money, but she has not been good at it in the past. The ratio of the amount of money in Jeanette’s savings account to the amount of money in her checking account was 2:7. Because Jeanette is trying to get better at saving money, she moves some money out of her checking account and into her savings account. Now, the ratio of the amount of money in her savings account to the amount of money in her checking account is 5:4. If Jeanette had $936 in her checking account before moving money, how much money does Jeanette have in each account after moving money?
2. Students surveyed boys and girls separately to determine which sport was enjoyed the most. After completing the boy survey, it was determined that for every 3 boys who enjoyed soccer, 5 boys enjoyed basketball. The girl survey had a ratio of the number of girls who enjoyed soccer to the number of girls who enjoyed basketball of 6:2. If the same number of boys and girls were surveyed and 90 boys enjoy soccer, how many fewer girls enjoy basketball than boys?
   1. 60
   2. 90
   3. 150
   4. 180
3. The school band is comprised of middle school students and high school students. Last year the ratio of the number of middle school students to the number of high school students was 1:8. However, this year there was an increase in the number of middle school students in the band and the ratio of the number of middle school students to the number of high school students changed to 2:7. There are 18 middle school students in the band this year. Can you solve this problem to determine how many fewer high school students are in the band this year compared to last year? Why or why not? What would have to change about the problem for you to be able to solve it?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Make the change you proposed and solve the problem.

|  |
| --- |
| *PhD Level* |

1. Last year, a cookie factory shipped 12 boxes of chocolate chip cookies for every 5 boxes of oatmeal. They noticed that more people were buying oatmeal cookies than they originally had projected so they planned to increase the number of oatmeal boxes they ship this year. Last year, they shipped 7,236 boxes of chocolate chip cookies. This year, they plan on shipping 4,824 boxes of oatmeal cookies. What is the ratio of boxes of chocolate chip cookies shipped to boxes of oatmeal cookies shipped for this year?

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

**EXIT TICKET**

|  |  |  |  |
| --- | --- | --- | --- |
| 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. After the first semester of 6th grade, the ratio of the number of math students earning an A to the number of students earning a B was 2:9. However, after the second semester, the ratio of the number of math students earning an A to the number of math students earning a B was changed to 4:7.

1. How many students had a B at the end of the first semester if there were 92 students who received an A in the second semester?
2. How many fewer students were earning an A during the first semester than during the second semester?
3. If the number of students in the 6th grade changed from semester 1 to semester 2, could you still figure out how many students had a B at the end of the first semester? Why?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_