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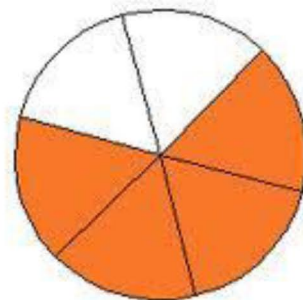
Date _____

Equivalent Ratios Defined Through the Value of a Ratio

You created a new playlist, and 100 of your friends listened to it and shared if they liked the new playlist or not. Nadhii said the ratio of the number of people who liked the playlist to the number of people who did not like the playlist is 75:25. Dylan said that for every three people who liked the playlist, one person did not.

Do Nadhii and Dylan agree? Prove your answer using the values of the ratios.

1. The ratio of the number of shaded sections to the number of unshaded sections is 4 to 2. What is the value of the ratio of the number of shaded pieces to the number of unshaded pieces?



2. Use the value of the ratio to determine which ratio(s) is equivalent to 7: 15.
- 21: 45
 - 14: 45
 - 3: 5
 - 63: 135
3. Sean was at batting practice. He swung 25 times but only hit the ball 15 times.
- Describe and write more than one ratio related to this situation.
 - For each ratio you created, use the value of the ratio to express one quantity as a fraction of the other quantity.
 - Make up a word problem that a student can solve using one of the ratios and its value.
4. Your middle school has 900 students. $\frac{1}{3}$ of the students bring their lunch instead of buying lunch at school. What is the value of the ratio of the number of students who do bring their lunch to the number of students who do not?

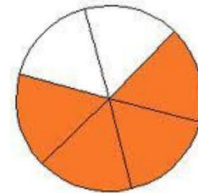
You created a new playlist, and 100 of your friends listened to it and shared if they liked the new playlist or not. Nadhii said the ratio of the number of people who liked the playlist to the number of people who did not like the playlist is 75:25. Dylan said that for every three people who liked the playlist, one person did not.

Do Nadhii and Dylan agree? Prove your answer using the values of the ratios.

Dylan and Nadhii agree. The value of both of their ratios is equivalent, so their ratios are also equivalent.

1. The ratio of the number of shaded sections to the number of unshaded sections is 4 to 2. What is the value of the ratio of the number of shaded pieces to the number of unshaded pieces?

$$\frac{4}{2} = \frac{2}{1} \text{ or } 2.$$



2. Use the value of the ratio to determine which ratio(s) is equivalent to 7:15.
- 21:45
 - 14:45
 - 3:5
 - 63:135

Both (a) and (d) are equivalent to 7:15.

3. Sean was at batting practice. He swung 25 times but only hit the ball 15 times.
- Describe and write more than one ratio related to this situation.

Ratio of the number of hits to the total number of swings is 15:25.

Ratio of the number hits to the number of misses is 15:10.

Ratio of the number of misses to the number of hits is 10:15.

Ratio of the number of misses to the total number of swings is 10:25.

- For each ratio you created, use the value of the ratio to express one quantity as a fraction of the other quantity.

The number of hits is $\frac{15}{25}$ or $\frac{3}{5}$ of the total number of swings.

The number of hits is $\frac{15}{10}$ or $\frac{3}{2}$ the number of misses.

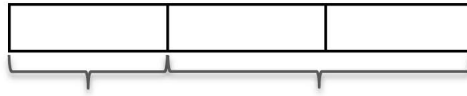
The number of misses is $\frac{10}{15}$ or $\frac{2}{3}$ the number of hits.

The number of misses is $\frac{10}{25}$ or $\frac{2}{5}$ of the total number of swings.

- Make up a word problem that a student can solve using one of the ratios and its value.

If Sean estimates he will take 10 swings in his next game, how many hits would he expect to get, assuming his ratio of hits-to-swings does not change.

4. Your middle school has 900 students. $\frac{1}{3}$ of the students bring their lunch instead of buying lunch at school. What is the value of the ratio of the number of students who do bring their lunch to the number of students who do not?



300 students bring lunch 600 students buy lunch

First, I created a tape diagram. In the tape diagram, $\frac{1}{3}$ of the students bring their lunch instead of buying lunch at school. I determined that 300 students bring their lunch, leaving 600 students who buy their lunch. One unit of the tape diagram represents 300, and 2 units of the tape diagram represent 600. This creates a ratio of 1:2. As such, the value of the ratio of the number of students who bring their lunch to the number of students who buy their lunch is $\frac{1}{2}$.