Family Support Materials

Introducing Ratios

Here are the video lesson summaries for Grade 6, Unit 2 Introducing Ratios. Each video highlights key concepts and vocabulary that students learn across one or more lessons in the unit. The content of these video lesson summaries is based on the written Lesson Summaries found at the end of lessons in the curriculum. The goal of these videos is to support students in reviewing and checking their understanding of important concepts and vocabulary. Here are some possible ways families can use these videos:

- Keep informed on concepts and vocabulary students are learning about in class.
- Watch with their student and pause at key points to predict what comes next or think up other examples of vocabulary terms (the bolded words).
- Consider following the Connecting to Other Units links to review the math concepts that led up to this unit or to preview where the concepts in this unit lead to in future units.

Grade 6, Unit 2: Introducing Ratios	Vimeo	YouTube
Video 1: What are Equivalent Ratios (Lessons 1–5)	Link	Link
Video 2: Double Number Line Diagrams (Lessons 6–8)	Link	Link
Video 3: Comparing Situations by Examining Ratios (Lessons 9–10)	Link	Link
Video 4: Tables of Equivalent Ratios (Lessons 11–14)	Link	Link
Video 5: Using Diagrams to Solve Ratio Problems (Lessons 15–16)	Link	Link

Video 1

Video 'VLS G6U2V1 What are Equivalent Ratios (Lessons 1–5)' available here: https://player.vimeo.com/video/455248778.

Video 2

Video 'VLS G6U2V2 Double Number Line Diagrams (Lessons 6–8)' available here: https://player.vimeo.com/video/457996610.

Video 3

Video 'VLS G6U2V3 Comparing Situations by Examining Ratios (Lessons 9–10)' available here: https://player.vimeo.com/video/457998155.

Video 4

Video 'VLS G6U2V4 Tables of Equivalent Ratios (Lessons 11–14)' available here: https://player.vimeo.com/video/458003339.

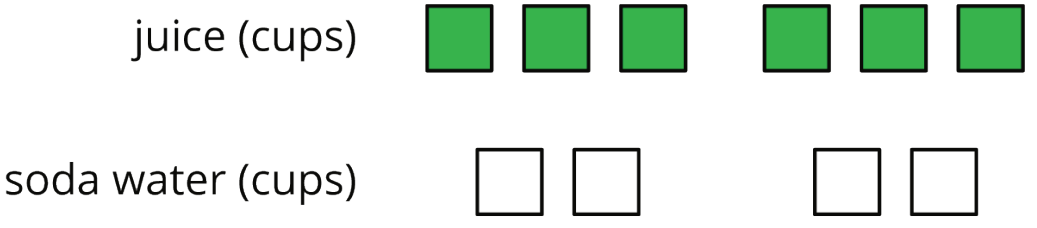
Video 5

Video 'VLS G6U2V5 Using Diagrams to Solve Ratio Problems (Lessons 15–16)' available here: https://player.vimeo.com/video/458004640.

What are Ratios?

Family Support Materials 1

A **ratio** is an association between two or more quantities. For example, say we have a drink recipe made with cups of juice and cups of soda water. Ratios can be represented with diagrams like those below.



Here are some correct ways to describe this diagram:

- The ratio of cups of juice to cups of soda water is $6 : 4$.
- The ratio of cups of soda water to cups of juice is 4 to 6.
- There are 3 cups of juice for every 2 cups of soda water.

The ratios $6 : 4$, $3 : 2$, and $12 : 8$ are **equivalent** because each ratio of juice to soda water would make a drink that tastes the same.

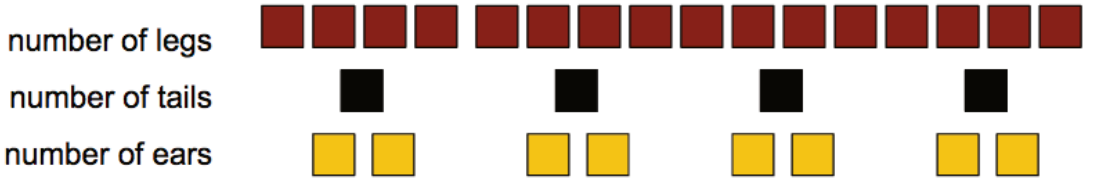
Here is a task to try with your student:

There are 4 horses in a stall. Each horse has 4 legs, 1 tail, and 2 ears.

1. Draw a diagram that shows the ratio of legs, tails, and ears in the stall.
2. Complete each statement.
    - The ratio of _____ to _____ to _____ is _____ : _____ : _____.
    - There are _____ ears for every tail. There are _____ legs for every ear.

Solution:

1. Answers vary. Sample response:



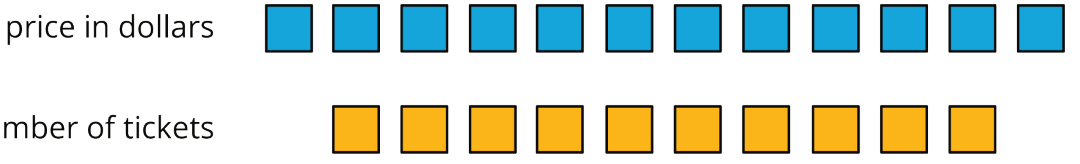
2. Answers vary. Sample response: The ratio of legs to tails to ears is $16 : 4 : 8$. There are 2 ears for every tail. There are 2 legs for every ear.

Representing Equivalent Ratios

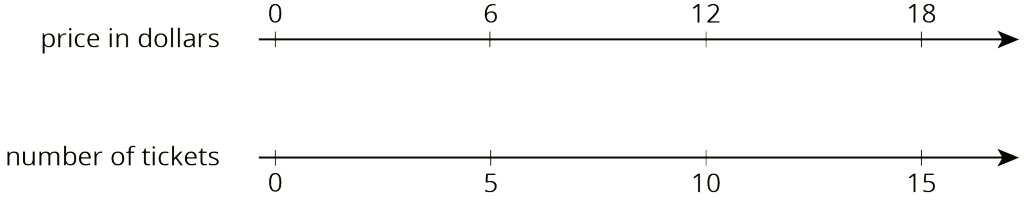
Family Support Materials 2

There are different ways to represent ratios.

Let's say the 6th grade class is selling raffle tickets at a price of $6 for 5 tickets. Some students may use diagrams with shapes to represent the situation. For example, here is a diagram representing 10 tickets for $12.



Drawing so many shapes becomes impractical. Double number line diagrams are easier to work with. The one below represents the price in dollars for different numbers of raffle tickets all sold *at the same rate* of $12 for 10 tickets.



Here is a task to try with your student:

Raffle tickets cost $6 for 5 tickets.

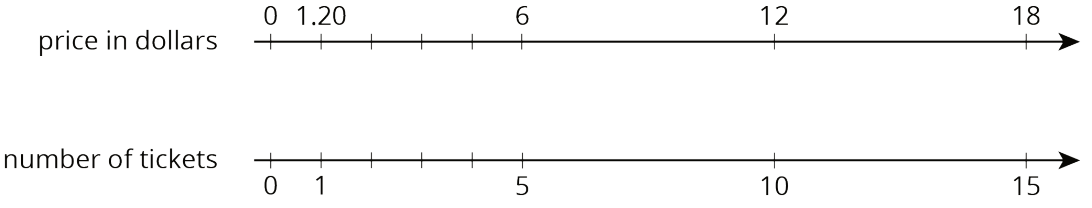
1. How many tickets can you get for $90?

2. What is the price of 1 ticket?

Solution:

1. 75 tickets. Possible strategies: Extend the double number line shown and observe that $90 is lined up with 75 tickets. Or, since 90 is 6 times 15, compute 5 times 15.

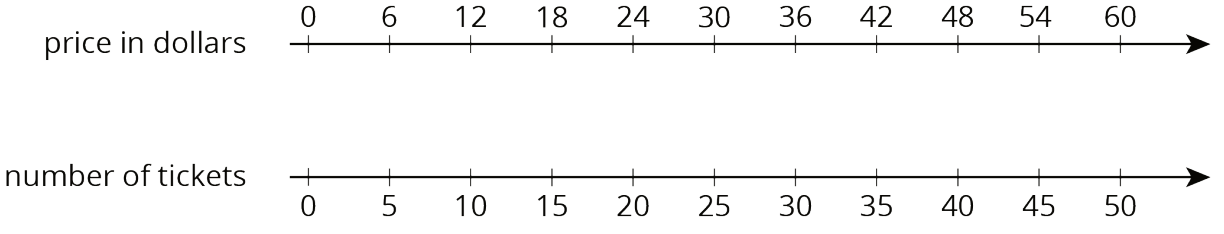
2. $1.20. Possible strategies: Divide the number line into 5 equal intervals, as shown. Reason that the price in dollars of 1 ticket must be $6 \div 5$.



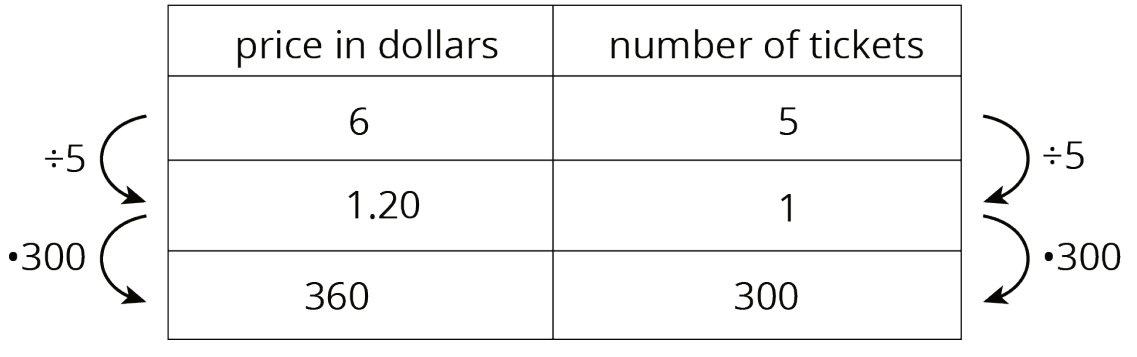
Solving Ratio and Rate Problems

Family Support Materials 3

Over the course of this unit, your student has learned to use the language of ratios and to work with ratios using representations like diagrams and double number lines. In the final sections of the unit, they use **tables** to organize equivalent ratios. Double number lines are hard to use in problems with large amounts. Let's think about an example we saw before: the 6th grade class is selling raffle tickets at a price of $6 for 5 tickets. If we tried to extend the double number line below to represent the price of 300 raffle tickets, it would take 5 times more paper!



A table is a better choice to represent this situation. Tables of equivalent ratios are useful because you can arrange the rows in any order. For example, a student may find the price for 300 raffle tickets by making the table shown.



price in dollars	number of tickets
6	5
1.20	1
360	300

Although students can choose any representation that helps them solve a problem, it is important that they get comfortable with tables because they are used for a variety of purposes throughout high school and college mathematics courses.

Here is a task to try with your student:

At a constant speed, a train travels 45 miles in 60 minutes. At this rate, how far does the train travel in 12 minutes? If you get stuck, consider creating a table.

Solution:

9 miles. Possible strategy:

time in minutes	distance in miles
60	45
1	0.75
12	9