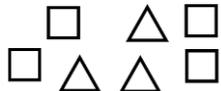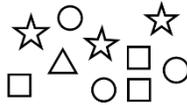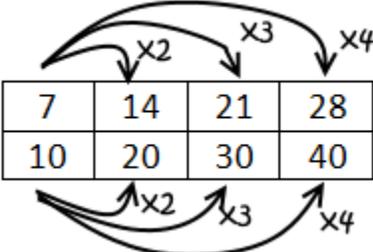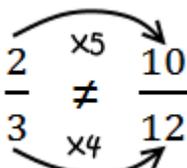This study sheet provides students and parents with the *basic concepts* of each chapter. Students still need to apply these skills in context. They need to know *when* to apply each concept, often after working through a word problem, table, chart, or graph. Some problems may be more challenging than the ones shown here, but students first need to understand these basic concepts. There are usually several ways to solve a math problem, but this guide will show you the easiest way for 6th graders. The sections are listed in the order that I plan on teaching them, and that is subject to change. We do not use every section of the textbook.

Click on the blue links to navigate through the study guide. You can also view videos at Khan Academy and Virtual Nerd.

Section 4.1	Topic: Model Ratios	Common errors to avoid:	Try this problem on another sheet of paper:	Practice more at these websites:
A ratio is a comparison between 2 numbers. For example, 3 white counters to 2 gray counters. Or, 4 squares to 3 triangles.		The order matters! 4 to 3 is *not* the same as 3 to 4. Pay attention to which item is mentioned first, and then write that number first.	What is the ratio of stars to *total* items in this model? Answer	Ratio Rumble Coloring Ratios (you have to color *all* the blocks in the model) IXL Ratio Models
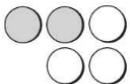
Section 4.2	Topic: Ratio and Rates	Common errors to avoid:	Try this problem on another sheet of paper:	Practice more at these websites:
A rate is just a ratio with 2 different labels, like 8 *dollars* to 1 *hour*. Ratios and rates can be written 3 ways. The ratio 8 to 1 can be written as 8 "to" 1 , 8:1 , or $\frac{8}{1}$		Again, the order matters! Pay attention to which item is mentioned first, and then write that number first.	Theresa bought 7 apples and 6 bananas. Write the ratio of bananas to apples 3 different ways. Answer	Writing Ratios IXL Writing Ratios Pictures to Numbers

Section 4.3	Topic: Equivalent Ratios	Common errors to avoid:	Try this problem on another sheet of paper:	Practice more at these websites:
"Equivalent" means "equal". These are just like equivalent fractions! So, write the ratio like a fraction. Just multiply the numerator and denominator by the same factor.		To determine if 2 ratios are equivalent, take the time to write down your multipliers. So, these are *not* equivalent, because *different* multipliers were used.	Are $\frac{8}{3}$ and $\frac{40}{15}$ equivalent? Tell how you know. Answer	Ratio Stadium Ratio Blaster Ratio Tables Equivalent: Yes or No? Bingo Ratio Splat

Section	Topic:		Common errors to avoid:	Try this problem on another sheet of paper:	Practice more at these websites:
4.5	Use Equivalent Ratios				

You can use your knowledge of how equivalent ratios work to determine unknown values.

You know that $5 \times 9 = 45$

$$\frac{45}{x} = \frac{5}{6}$$

(×9)

$$\frac{45}{54} = \frac{5}{6}$$ So you know to multiply 6×9 too

(×9)

Find the unknown value in these equivalent ratios:

$$\frac{32}{12} = \frac{?}{3}$$

[Answer](#)

[Dirt Bike Racing](#)

[Solving Proportions](#)

Section	Topic:		Common errors to avoid:	Try this problem on another sheet of paper:	Practice more at these websites:
4.6	Find Unit Rates				

A unit rate compares an amount to 1,

such as $\dfrac{25\ dollars}{1\ hour}$ or $\dfrac{35\ students}{1\ bus}$

You can find unit rates by writing the given rate and making an equivalent fraction with a denominator of 1.

(÷3)

$$\frac{72\ mi}{3\ hr} = \frac{24\ mi}{1\ hr}$$

(÷3)

Put your *smaller* number on the bottom of your original ratio, across from 1 on your new unit rate ratio.

(÷6)

$$\frac{312\ cards}{6\ decks} = \frac{52\ cards}{1\ deck}$$

(÷6)

If you pay $6 for 4 pounds of apples, what is the unit rate?
(cost for 1 apple)

[Answer](#)

[Find Unit Rates](#)

[Unit Rate Match](#)

[IXL Unit Rates](#)

Section	Topic:		Common errors to avoid:	Try this problem on another sheet of paper:	Practice more at these websites:
4.7	Use Unit Rates				

Sometimes, there is no obvious multiplier that we can use to find equivalent ratios.

For example, $\dfrac{15}{45} = \dfrac{6}{x}$ There is no easy way to find the multiplier for the numerators.

In these cases, start with the complete ratio that you know, and simplify it.

$\dfrac{15}{45}$ simplifies to $\dfrac{1}{3}$ Now we can find the equivalent ratio like normal.

(×6)

$$\frac{\cancel{15}}{\cancel{45}}\ \frac{1}{3} = \frac{6}{x}$$ So, the missing value is 18

(×6)

Start with the complete ratio that's already given.

$$\frac{18}{?} = \boxed{\frac{21}{7}}\ \text{Start here!}$$

Simplify it: $\dfrac{21}{7}$ is $\dfrac{3}{1}$

$$\frac{18}{?} = \frac{3}{1}$$

Now solve like you normally do.

Find the unknown value by using a unit rate:

$$\frac{7}{?} = \frac{2}{10}$$

[Answer](#)

[Solving Proportions](#)

[Using Unit Rates](#)

[Comparing with Unit Rates](#)

Section 4.8	Topic: Equivalent Ratios and Graphs	Common errors to avoid:	Try this problem on another sheet of paper:	Practice more at these websites:

Once you have a ratio table, you can use the values as coordinates to make a graph.

Miles	2	4	6	8	10
Days	1	2	3	4	5

You will be told to use a certain set of values for your x- or y-coordinates.

Here, we will list days as the x-coordinates and miles as y-coordinates.

List them in (x, y) form.

(1, 2) (2, 4) (3, 6) (4, 8) (5, 10)

Common errors to avoid:

A graph formed from the values in an equivalent ratio table should not be jagged!

Wrong!

You should be able to place a ruler along the continual path.

Try this problem on another sheet of paper:

Compete the table and graph the data (use graph paper).

Students	25		75	
Classes	1	2	3	4

Make the classes your x-axis values.

Make the number of students your y-axis values.

Answer

Practice more at these websites:

IXL Graphing from a Table

Buzz Math

Section	Answer	Return to Study Guide
4.1	3 to 10 or 3:10 or $\frac{3}{10}$	

Section	Answer	Return to Study Guide
4.2	6 to 7 or 6:7 or $\frac{6}{7}$	

Section	Answer	Return to Study Guide
4.3	Yes, they are equivalent. I know because you can multiply the numerator and the denominator by the same value (5). $$\frac{8 \times 5 = 40}{3 \times 5 = 15}$$	

Section	Answer	Return to Study Guide
4.5	The unknown value is 8.	

$$\frac{32}{12} = \frac{8}{3}$$

$\div 4$ (numerator)

$\div 4$ (denominator)

Section	Answer	Return to Study Guide
4.6	You pay $1.50 per pound.	

$$\overset{\div\, 4}{\underset{\div\, 4}{\frac{\$6}{4\ lbs.} = \frac{\$1.50}{1\ lb.}}}$$

Section	Answer	Return to Study Guide
4.7	The missing value is 35. $$\frac{7}{35} = \frac{2}{10}$$ Simplify $\frac{2}{10}$ to $\frac{1}{5}$, then you can find a multiplier that works (7). x 7 $$\frac{7}{35} = \frac{2}{10} \quad \frac{1}{5}$$ x 7	
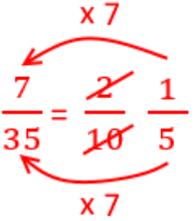
Section	Answer	Return to Study Guide
4.8		

Students	25	50	75	100
Classes	1	2	3	4