EXERCISE 1

Dividing Fractions

a. Open your workbook to Lesson 5.
- Touch the first problem in Part 1.
- It tells you to turn the fraction into 1. How do you change a fraction into 1? (Signal.) *Turn the fraction upside down and multiply.*

b. Do all the problems in Part 1. Turn each fraction into 1. You have 3 minutes.
- (Observe students and give feedback.)

EXERCISE 2

Reducing Fractions

a. Look at Part 2. Find the biggest number you can multiply by to reach both of the numbers in the pairs in Part 2.

b. You have 3 minutes.
- (Observe students and give feedback.)

EXERCISE 3

Reducing Fractions

a. (Write on the board:)

$$\frac{6}{9}$$

- We're going to reduce this fraction by taking out the biggest fraction equal to 1. What do we take out to reduce a fraction? (Signal.) *The biggest fraction equal to 1.*
- Let's reduce 6 ninths. To find the biggest fraction equal to 1, we have to find the biggest number we can multiply by to reach 6 and 9.
- Figure out the biggest number we can multiply by to reach 6 and 9. (Pause.)
- What's the answer? (Signal.) *3.*
- If 3 is the biggest number we can multiply by to reach 6 and 9, the biggest fraction equal to 1 we can take out is 3 thirds.

- (Write to show:)

$$\frac{6}{9} = \left(\frac{3}{3}\right) \times -$$

b. Let's figure out the top of the reduced fraction.
- (Point as you read:)
- 6 equals 3 times what number? (Signal.) *2.*
- (Write to show:)

$$\frac{6}{9} = \left(\frac{3}{3}\right) \times \frac{2}{}$$

- Let's figure out the bottom.
- (Point as you read:)
- 9 equals 3 times what number? (Signal.) *3.*
- (Write to show:)

$$\frac{6}{9} = \left(\frac{3}{3}\right) \times \frac{2}{3}$$

c. The fraction in parentheses equals 1, so we can cross it out.

- (Cross out $\left(\frac{3}{3}\right)$.)

- When we take out the fraction equal to 1, the reduced fraction is 2 thirds. What's the reduced fraction? (Signal.) *2 thirds.*
- (Write to show:)

$$\frac{6}{9} = \left(\frac{\cancel{3}}{\cancel{3}}\right) \times \frac{2}{3} = \frac{2}{3}$$

d. Let's do another one.
- (Write on the board:)

$$\frac{4}{12}$$

- What do we take out to reduce a fraction? (Signal.) *The biggest fraction equal to 1.*
- To find the biggest fraction equal to 1, we have to find the biggest number we can multiply by to reach 4 and 12.
- Tell me the biggest number we can multiply by. (Pause.) (Signal.) *4.*

- If 4 is the biggest number we can multiply by. The biggest fraction equal to 1 we can take out is 4 fourths.
- (Write to show:)

$$\frac{4}{12} = \left(\frac{4}{4}\right) \times \underline{}$$

e. Figure out the top of the reduced fraction. (Pause.)
- What is the top? (Signal.) *1.*
- (Write to show:)

$$\frac{4}{12} = \left(\frac{4}{4}\right) \times \frac{1}{}$$

- Figure out the bottom of the reduced fraction. (Pause.)
- What is the bottom? (Signal.) *3.*
- (Write to show:)

$$\frac{4}{12} = \left(\frac{4}{4}\right) \times \frac{1}{3}$$

- The fraction in parentheses equals 1, so we can cross it out.
- (Cross out $\left(\frac{4}{4}\right)$.)
- When we take out the fraction equal to 1, what is the reduced fraction? (Signal.) *1 third.*
- (Write to show:)

$$\frac{4}{12} = \left(\frac{\cancel{4}}{\cancel{4}}\right) \times \frac{1}{3} = \frac{1}{3}$$

f. Let's reduce one more.
- (Write on the board:)

$$\frac{10}{6}$$

- What do we take out to reduce a fraction? (Signal.) *The biggest fraction equal to 1.*
- To find the biggest fraction equal to 1, we have to find the biggest number we can multiply by to reach 10 and 6.

- Tell me the biggest number we can multiply by. (Pause.) (Signal.) *2.*
- If 2 is the biggest number we can multiply by, the biggest fraction equal to 1 we can take out is 2 halves.
- (Write to show:)

$$\frac{10}{6} = \left(\frac{2}{2}\right) \times \underline{}$$

- Figure out the top of the reduced fraction. (Pause.)
- What is the top? (Signal.) *5.*
g. (Write to show:)

$$\frac{10}{6} = \left(\frac{2}{2}\right) \times \frac{5}{}$$

- Figure out the bottom of the reduced fraction. (Pause.)
- What is the bottom? (Signal.) *3.*
h. (Write to show:)

$$\frac{10}{6} = \left(\frac{2}{2}\right) \times \frac{5}{3}$$

- The fraction in the parentheses equals 1, so we can cross it out.
- (Cross out $\left(\frac{2}{2}\right)$.)
- When we take out the fraction equal to 1, what is the reduced fraction? (Signal.) *5 thirds.*
- (Write to show:)

$$\frac{10}{6} = \left(\frac{2}{2}\right) \times \frac{5}{3} = \frac{5}{3}$$

EXERCISE 4

Addition/Subtraction

a. (Write on the board:)

★

$$
\begin{array}{r}
\dfrac{1}{2} \\[4pt]
\dfrac{2}{3} \\[4pt]
+\dfrac{5}{6} \\ \hline
\end{array} \qquad \underline{\hspace{3cm}}
$$

- Can we work this problem the way it is? (Signal.) *No.*
- Why not? (Signal.) *The wholes aren't the same.*
- To make the wholes the same, we have to make a new bottom number. How do we make a new bottom number? (Signal.) *Multiply the old bottoms together.*
- Tell me the numbers for the new bottom. (Pause.) (Signal.) *2 times 3 times 6.*
- (Write the new bottoms.)

$$
\begin{array}{r}
\dfrac{1}{2} \\[4pt]
\dfrac{2}{3} \\[4pt]
+\dfrac{5}{6} \\ \hline
\end{array}
\qquad
\begin{array}{l}
= \dfrac{}{2 \times 3 \times 6} \\[8pt]
= \dfrac{}{2 \times 3 \times 6} \\[8pt]
= \dfrac{}{2 \times 3 \times 6}
\end{array}
$$

b. In the new fractions, we want to end with the same amount we start with, so what will we multiply by? (Signal.) *1.*
- Let's figure out the fractions equal to 1. What's the new bottom number of 1 half going to be? (Signal.) *2 times 3 times 6.*
- What's the old bottom of 1 half? (signal.) *2.*
- So what do we have to multiply the 2 by? (Signal.) *3 times 6.*
- So what fraction that equals 1 do we multiply by? (Signal.) *3 times 6 over 3 times 6.*

- (Write to show:)

$$
\begin{array}{r}
\dfrac{1}{2}\left(\dfrac{3 \times 6}{3 \times 6}\right) = \dfrac{}{2 \times 3 \times 6} \\[10pt]
\dfrac{2}{3} \qquad\quad = \dfrac{}{2 \times 3 \times 6} \\[10pt]
+\dfrac{5}{6} \qquad\quad = \dfrac{}{2 \times 3 \times 6} \\ \hline
\end{array}
$$

- What's the new bottom of 2 thirds going to be? (Signal.) *2 times 3 times 6.*
- What's the old bottom of 2 thirds? (Signal.) *3.*
- So what do we have to multiply the 3 by? (Signal.) *2 times 6.*
- So what fraction that equals 1 do we multiply by? (Signal.) *2 times 6 over 2 times 6.*
- (Write to show:)

$$
\begin{array}{r}
\dfrac{1}{2}\left(\dfrac{3 \times 6}{3 \times 6}\right) = \dfrac{}{2 \times 3 \times 6} \\[10pt]
\dfrac{2}{3}\left(\dfrac{2 \times 6}{2 \times 6}\right) = \dfrac{}{2 \times 3 \times 6} \\[10pt]
+\dfrac{5}{6} \qquad\quad = \dfrac{}{2 \times 3 \times 6} \\ \hline
\end{array}
$$

- What's the new bottom of 5 sixths going to be? (Signal.) *2 times 3 times 6.*
- What's the old bottom of 5 sixths? (Signal.) *6.*
- So what do we have to multiply the 6 by? (Signal.) *2 times 3.*
- So what fraction that equals 1 do we multiply by? (Signal.) *2 times 3 over 2 times 3.*

- (Write to show:)

$$\frac{1}{2}\left(\frac{3 \times 6}{3 \times 6}\right) = \frac{}{2 \times 3 \times 6}$$

$$\frac{2}{3}\left(\frac{2 \times 6}{2 \times 6}\right) = \frac{}{2 \times 3 \times 6}$$

$$+\frac{5}{6}\left(\frac{2 \times 3}{2 \times 3}\right) = \frac{}{2 \times 3 \times 6}$$

c. Let's figure out the new top numbers for each fraction. Read the numbers you multiply for the new top number of the first fraction. (Signal.) *1 times 3 times 6.*
- Tell me what that equals. (Pause.) (Signal.) *18.*
- (Write to show:)

$$\frac{1}{2}\left(\frac{3 \times 6}{3 \times 6}\right) = \frac{18}{2 \times 3 \times 6}$$

$$\frac{2}{3}\left(\frac{2 \times 6}{2 \times 6}\right) = \frac{}{2 \times 3 \times 6}$$

$$+\frac{5}{6}\left(\frac{2 \times 3}{2 \times 3}\right) = \frac{}{2 \times 3 \times 6}$$

- Read the numbers you multiply for the top number in the next fraction. (Signal.) *2 times 2 times 6.*
- Tell me what that equals. (Pause.) (Signal.) *24.*
- (Write to show:)

$$\frac{1}{2}\left(\frac{3 \times 6}{3 \times 6}\right) = \frac{18}{2 \times 3 \times 6}$$

$$\frac{2}{3}\left(\frac{2 \times 6}{2 \times 6}\right) = \frac{24}{2 \times 3 \times 6}$$

$$+\frac{5}{6}\left(\frac{2 \times 3}{2 \times 3}\right) = \frac{}{2 \times 3 \times 6}$$

- Read the numbers you multiply for the top number in the next fraction. (Signal.) 5 *times 2 times 3.*
- Tell me what that equals. (Pause.) (Signal.) *30.*
- (Write to show:)

$$\frac{1}{2}\left(\frac{3 \times 6}{3 \times 6}\right) = \frac{18}{2 \times 3 \times 6}$$

$$\frac{2}{3}\left(\frac{2 \times 6}{2 \times 6}\right) = \frac{24}{2 \times 3 \times 6}$$

$$+\frac{5}{6}\left(\frac{2 \times 3}{2 \times 3}\right) = \frac{30}{2 \times 3 \times 6}$$

d. Read the numbers you multiply for the new bottom number. (Signal.) *2 times 3 times 6.*
- Tell me what that equals. (Pause.) (Signal.) *36.*
- I'll take those out and write the new bottom number for each fraction.
- (Cross out the 2 × 3 × 6 and write 36 for each fraction.)
- What's the bottom for the answer? (Signal.) *36.*
- (Write under the bottom line:)

$$\frac{1}{2}\left(\frac{3 \times 6}{3 \times 6}\right) = \frac{18}{\cancel{2 \times 3 \times 6}\ 36}$$

$$\frac{2}{3}\left(\frac{2 \times 6}{2 \times 6}\right) = \frac{24}{\cancel{2 \times 3 \times 6}\ 36}$$

$$+\frac{5}{6}\left(\frac{2 \times 3}{2 \times 3}\right) = \frac{30}{\cancel{2 \times 3 \times 6}\ 36}$$

$$\frac{}{36}$$

e. Read what you add for the top of the answer. (Signal.) *18 plus 24 plus 30.*
- Tell me what that equals. (Pause.) (Signal.) *72.*

Lesson 5

- (Write to show:)

$$\frac{1}{2}\left(\frac{3\times6}{3\times6}\right)=\frac{18}{2\times3\times6}\ 36$$

$$\frac{2}{3}\left(\frac{2\times6}{2\times6}\right)=\frac{24}{2\times3\times6}\ 36$$

$$+\frac{5}{6}\left(\frac{2\times3}{2\times3}\right)=\frac{30}{2\times3\times6}\ 36$$

$$\frac{72}{36}$$

- What's the answer for the problem? (Signal.) *72 over 36.*

EXERCISE 5

Workcheck

a. We're going to check the answers. Exchange workbooks and get ready to check the answers. (Pause.)
- Put an **X** next to each item you got wrong.
- (Read the answers for all rows. See **Answer Key.**)
- Return workbooks.
b. Now we're going to figure out the number of points you've earned for this lesson.
- (Point to the posted information.)

Worksheet Items	Errors	Points
	0–2	10
	3	7
	4	5
	5	3
	6	1
	7 or more	0

- Count the number of items you got wrong. Figure out the number of points you earned and write the number in the "Items" box.

- (Observe students and give feedback.)
c. (Tell the group how many points they earned for the lesson.) Write that number in the "Hard Work" box; then figure out the total for today's lesson.
d. Turn to the Point Summary Charts. Write the points in the box for Lesson 5. ✔
e. Total your points for Lessons 1 through 5 and write the total number on the chart.
- (Observe students and give feedback.)
f. Everybody, find the Five-Lesson Point Graph on page 120. ✔
- (Help the students plot their five-lesson scores on the graph.)

Lesson 5

Items + Hard Work = TOTAL

1

$$\frac{3}{4}\left(\quad\right)=\frac{\quad}{\quad}=1 \qquad \frac{4}{1}\left(\quad\right)=\frac{\quad}{\quad}=1 \qquad \frac{5}{3}\left(\quad\right)=\frac{\quad}{\quad}=1$$

$$\frac{9}{4}\left(\quad\right)=\frac{\quad}{\quad}=1 \qquad \frac{1}{9}\left(\quad\right)=\frac{\quad}{\quad}=1 \qquad \frac{5}{7}\left(\quad\right)=\frac{\quad}{\quad}=1$$

$$\frac{7}{5}\left(\quad\right)=\frac{\quad}{\quad}=1 \qquad \frac{2}{6}\left(\quad\right)=\frac{\quad}{\quad}=1 \qquad \frac{2}{3}\left(\quad\right)=\frac{\quad}{\quad}=1$$

2

$$8 \quad 4 \qquad 10 \quad 15 \qquad 6 \quad 8$$
$$\overline{\quad} \qquad\qquad \overline{\quad} \qquad\qquad \overline{\quad}$$

$$4 \quad 3 \qquad 2 \quad 6 \qquad 9 \quad 3$$
$$\overline{\quad} \qquad\qquad \overline{\quad} \qquad\qquad \overline{\quad}$$

$$12 \quad 3 \qquad 8 \quad 20 \qquad 5 \quad 2$$
$$\overline{\quad} \qquad\qquad \overline{\quad} \qquad\qquad \overline{\quad}$$

Point Summary Charts

1.

Lesson	1	2	3	4	5	Total
Points						

2.

Lesson	6	7	8	9	10	Total
Points						

3.

Lesson	11	12	13	14	15	Total
Points						

4.

Lesson	16	17	18	19	20	Total
Points						

5.

Lesson	21	22	23	24	25	Total
Points						

6.

Lesson	26	27	28	29	30	Total
Points						

7.

Lesson	31	32	33	34	35	Total
Points						

8.

Lesson	36	37	38	39	40	Total
Points						

9.

Lesson	41	42	43	44	44 R	45	Total
Points							

10.

Lesson	46	47	48	49	49 R	50	Total
Points							

11.

Lesson	51	52	53	54	55	Total
Points						

12.

Lesson	56	56 R	57	58	59	60	Total
Points							

13.

Lesson	61	62	63	63 R	64	65	Total
Points							

14.

Lesson	66	67	68	69	70	Total
Points						
REV	70		71		72	

Daily Points

Daily points will be awarded by the teacher as follows:
1. **Oral Work** 0–3 group points for working hard and answering on signal. Everyone in the group will receive the same number of points for oral work.

2. **Worksheet Items**

Errors	Points
0–2	10
3	7
4	5
5	3
6	1
7 or more	0

A grade: The average of five-lesson totals is at least 50 points.
B grade: The average of five-lesson totals is 40–49 points.
C grade: The average of five-lesson totals is 30–39 points.
An average of five-lesson totals of less than 30 points is a failing grade for this course.

Points

Five-Lesson Point Graph

| 70 |
| 65 |
| 60 |
| 55 |
| 50 |
| 45 |
| 40 |
| 35 |
| 30 |
| 25 |
| 20 |
| 15 |
| 10 |
| 5 |
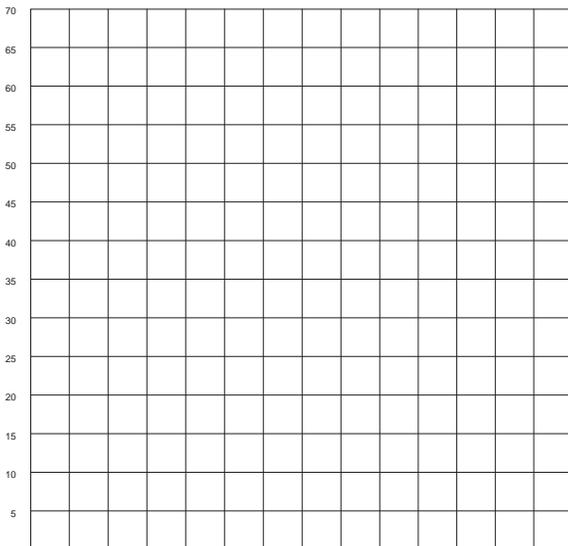
5-Lesson Groups: 1–5 6–10 11–15 16–20 21–25 26–30 31–35 36–40 41–45 46–50 51–55 56–60 61–65 66–70

5-Lesson Point Totals: __ __ __ __ __ __ __ __ __ __ __ __ __ __