

Lesson 39

EXERCISE 1: MENTAL MATH

- a. Time for some mental math.
- Listen: Count by 2s to 20. (Signal.) 2, 4, 6, 8, 10, 12, 14, 16, 18, 20.
 - Count by 20s to 100. (Signal.) 20, 40, 60, 80, 100. (Repeat until firm.)
- b. Count by 9s to 36. (Signal.) 9, 18, 27, 36.
- Count by 90s to 360. (Signal.) 90, 180, 270, 360. (Repeat until firm.)
- c. Listen: What's 90 times 2? (Signal.) 180.
- What's 90 times 4? (Signal.) 360.
 - What's 90 times 3? (Signal.) 270. (Repeat until firm.)
- d. Listen: What's 8 divided by 2? (Signal.) 4.
- So what's 80 divided by 2? (Signal.) 40.
 - What's 120 divided by 2? (Signal.) 60.
 - What's 180 divided by 2? (Signal.) 90. (Repeat until firm.)
- e. Listen: What's 2 times 6? (Signal.) 12.
- So what's 20 times 6? (Signal.) 120.
 - What's 40 times 6? (Signal.) 240.
 - What's 50 times 5? (Signal.) 250. (Repeat until firm.)
- f. My turn to count by 50s to 300: 50, 100, 150, 200, 250, 300.
- Count by 50s to 300. (Signal.) 50, 100, 150, 200, 250, 300.
 - Count by 50s to 500. (Signal.) 50, 100, 150, 200, 250, 300, 350, 400, 450, 500. (Repeat until firm.)

EXERCISE 2: EQUATIONS

SOLVE FOR A LETTER

REMEDY

- a. (Display:) [39:2A]

$$\frac{1}{3} R = 8$$

$$1 R =$$

- Read the problem. (Signal.) $\frac{1}{3} R = 8$. We have to figure out what 1 R equals.
- What do we change $\frac{1}{3}$ into? (Signal.) 1.
- So what do we multiply $\frac{1}{3}$ by? (Signal.) 3 over 1.
- What do we multiply the other side by? (Signal.) 3 over 1.

(Add to show:) [39:2B]

$$\left(\frac{3}{1}\right) \frac{1}{3} R = 8 \left(\frac{3}{1}\right)$$

$$1 R =$$

- b. (Point left.) How many Rs are on this side? (Signal.) 1.

- (Point right.) Say the problem for this side. (Signal.) 8 times 3 over 1.

(Add to show:) [39:2C]

$$\left(\frac{3}{1}\right) \frac{1}{3} R = \frac{8}{1} \left(\frac{3}{1}\right)$$

$$1 R =$$

- What does 1R equal? (Signal.) 24.

(Add to show:) [39:2D]

$$\left(\frac{3}{1}\right) \frac{1}{3} R = \frac{8}{1} \left(\frac{3}{1}\right)$$

$$1 R = \frac{24}{1} = \boxed{24}$$

WORKBOOK PRACTICE

- a. Open your workbook to Lesson 39 and find part 1. ✓

(Teacher reference:)

R Part M

a. $\frac{2}{5} P = 20$

b. $\frac{3}{2} j = 6$

$$1P = \square = \square$$

$$1j = \square = \square$$

You're going to work problems by multiplying both sides by the reciprocal.

- Read problem A. (Signal.) $\frac{2}{5} P = 20$.
- Raise your hand when you know what you multiply both sides by. ✓
- What do you multiply by? (Signal.) 5 halves.
- Multiply both sides by $\frac{5}{2}$. Then stop. ✓

- b. Check your work.
(Display:) [39:2E]

$$\text{a. } \left(\frac{5}{2}\right) \frac{2}{5} P = 20 \left(\frac{5}{2}\right)$$

$$1 P =$$

Here's what you should have.

- c. Touch P in the top equation. ✓
- How many Ps are on that side? (Signal.) 1.
 - Complete the equation for 1 P. Figure out the fraction that equals 1 P. Then figure out the whole-number answer.
(Observe students and give feedback.)
 - Everybody, what fraction equals 1 P? (Signal.) 100 halves.
 - What's the whole-number answer? (Signal.) 50.
(Add to show:) [38:2F]

$$\text{a. } \left(\frac{5}{2}\right) \frac{2}{5} P = \frac{20}{1} \left(\frac{5}{2}\right)$$

$$1 P = \frac{100}{2} = \boxed{50}$$

Here's what you should have.

- d. Read problem B. (Signal.) $3/2 J = 6$.
- Raise your hand when you know what you multiply both sides by. ✓
 - What do you multiply by? (Signal.) $2/3$.
 - Multiply both sides by $2/3$. Then stop. ✓
- e. Check your work.
(Display:) [39:2G]

$$\text{b. } \left(\frac{2}{3}\right) \frac{3}{2} j = 6 \left(\frac{2}{3}\right)$$

$$1 j =$$

Here's what you should have.

- f. (Touch J in the top equation.) How many Js are on this side? (Signal.) 1.
- Complete the equation for 1 J. Figure out the fraction that equals 1 J. Then figure out the whole-number answer.
(Observe students and give feedback.)

- Everybody, what fraction does 1 J equal? (Signal.) $12/3$.
- What whole number does 1 J equal? (Signal.) 4.
(Add to show:) [39:2H]

$$\text{b. } \left(\frac{2}{3}\right) \frac{3}{2} j = \frac{6}{1} \left(\frac{2}{3}\right)$$

$$1 j = \frac{12}{3} = \boxed{4}$$

Here's what you should have.

EXERCISE 3: SUBTRACTION

RENAMING WITH ZERO

- a. (Display:) [39:3A]

$$\begin{array}{r} 605 \\ -327 \\ \hline \end{array}$$

- Everybody, read the problem. (Signal.) $605 - 327$.
- Say the problem for the ones. (Signal.) $5 - 7$.
- Can you subtract? (Signal.) No.
You can't borrow from the tens column because it has zero tens. So you borrow from 60 tens.
- What's 60 tens minus one ten? (Signal.) 59 tens.
- What's 10 plus 5? (Signal.) 15.
(Add to show:) [39:3B]

$$\begin{array}{r} \overset{59}{\cancel{60}}15 \\ -327 \\ \hline \end{array}$$

- b. Say the new tens plus ones for the top number. (Signal.) 59 tens plus 15.
- Say the new problem for the ones column. (Signal.) $15 - 7$.
(Repeat until firm.)
 - You can work that problem. What's the answer? (Signal.) 8.
(Add to show:) [39:3C]

$$\begin{array}{r} \overset{59}{\cancel{60}}15 \\ -327 \\ \hline 8 \end{array}$$

- c. Say the problem for the tens column. (Signal.) 9 – 2.
- What's the answer? (Signal.) 7. (Add to show:) [39:3D]

$$\begin{array}{r} 59 \\ \cancel{60}5 \\ - 327 \\ \hline 78 \end{array}$$

- d. Say the problem for the hundreds column. (Signal.) 5 – 3.
- What's the answer? (Signal.) 2. (Add to show:) [39:3E]

$$\begin{array}{r} 59 \\ \cancel{60}5 \\ - 327 \\ \hline 278 \end{array}$$

WORKBOOK PRACTICE

- a. Find part 2 in your workbook. ✓ (Teacher reference:)

a.
$$\begin{array}{r} 403 \\ - 215 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 207 \\ - 148 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 700 \\ - 353 \\ \hline \end{array}$$

To work these problems, you have to rewrite the top number to show the new tens plus ones.

- b. Read problem A. (Signal.) 403 – 215.
- Say the problem for the ones. (Signal.) 3 – 5.
- Can you subtract? (Signal.) No.
- Can you borrow a 10 from the tens column? (Signal.) No.
- So you borrow from 40 tens.
- Rewrite the top number and work the problem. (Observe students and give feedback.)

- Everybody, read the problem you started with and the answer. (Signal.) 403 – 215 = 188. (Display:) [39:3F]

a.
$$\begin{array}{r} 39 \\ \cancel{40}13 \\ - 215 \\ \hline 188 \end{array}$$

Here's what you should have.

- c. Read problem B. (Signal.) 207 – 148.
- Say the problem for the ones. (Signal.) 7 – 8.
- Can you subtract? (Signal.) No.
- Can you borrow a 10 from the tens column? (Signal.) No.
- So you borrow from 20 tens.
- Rewrite the top number and work the problem. (Observe students and give feedback.)
- Everybody, read the problem you started with and the answer. (Signal.) 207 – 148 = 59. (Display:) [39:3G]

b.
$$\begin{array}{r} 19 \\ \cancel{20}17 \\ - 148 \\ \hline 59 \end{array}$$

Here's what you should have.

- d. Read problem C. (Signal.) 700 – 353.
- Say the problem for the ones. (Signal.) 0 – 3.
- Can you subtract? (Signal.) No.
- Can you borrow a 10 from the tens column? (Signal.) No.
- So you borrow from 70 tens.
- Rewrite the top number and work the problem. (Observe students and give feedback.)
- Everybody, read the problem you started with and the answer. (Signal.) 700 – 353 = 347. (Display:) [39:3H]

c.
$$\begin{array}{r} 69 \\ \cancel{70}10 \\ - 353 \\ \hline 347 \end{array}$$

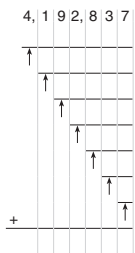
Here's what you should have.

EXERCISE 4: PLACE VALUE

MILLIONS

- a. Find part 3 in your workbook. ✓

(Teacher reference:)



- Read the millions number. (Signal.) *4 million 192 thousand 8 hundred 37.*
- b. You're going to write the place value for each digit. The place value for 4 is 4 million.
 - Say the place value for 4. (Signal.) *4 million.*
 - Say the place value for 1. (Signal.) *100 thousand.*
 - What's the next digit? (Signal.) 9.
 - Say the place value. (Signal.) *90 thousand.*
 - What's the next digit? (Signal.) 2.
 - Say the place value. (Signal.) *2 thousand.*
 - What's the next digit? (Signal.) 8.
 - Say the place value. (Signal.) *8 hundred.*
 - What's the next digit? (Signal.) 3.
 - Say the place value. (Signal.) *30.*
 - What's the next digit? (Signal.) 7.
 - Say the place value. (Signal.) *7.*

(Repeat until firm.)

- c. The arrows show the starting digit for each number you'll write.

- Write the place value for the digit 4.

Remember the commas. ✓

(Display:)

[39:4A]

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4,192,837
4,000,000
↑
    
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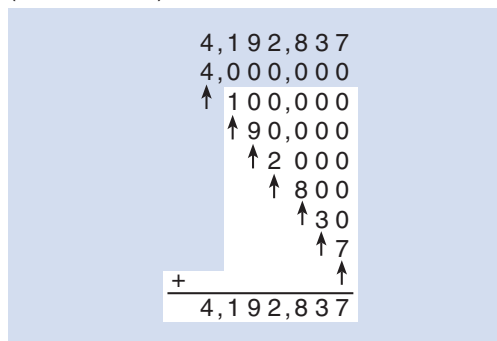
Here's what you should have.

- d. Write numbers for the rest of the arrows. (Observe students and give feedback.)

- e. Check your work.
- What did you write for the 1? (Signal.) *100 thousand.*
 - What did you write for the 9? (Signal.) *90 thousand.*
 - What did you write for the 2? (Signal.) *2 thousand.*
 - What did you write for the 8? (Signal.) *800.*
 - What did you write for the 3? (Signal.) *30.*
 - What did you write for the 7? (Signal.) *7.*
- f. Everybody, add the numbers and see if you end up with 4 million 192 thousand 837. ✓
- Everybody, read the answer to the problem. (Signal.) *4,192,837.*

(Add to show:)

[39:4B]



Here's what you should have. The place-value addition works.

EXERCISE 5: LONG DIVISION

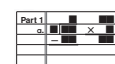
ANSWER TOO LARGE

REMEDY

- a. Open your textbook to Lesson 39 and find part 1. ✓

(Teacher reference:)

a. $55 \overline{)308}^6$ b. $25 \overline{)170}^6$ c. $78 \overline{)498}^7$



For some of these problems, the answer is too large. You'll work the problem with an answer that is one less.

- b. Copy problem A. Multiply and write the subtraction problem. Raise your hand when you know if the answer is too large. (Observe students and give feedback.)
- Everybody, is the answer too large? (Signal.) Yes.

- c. Work a second problem with the correct answer. Stop when you have worked the subtraction problem.

(Observe students and give feedback.)

- Everybody, what's the answer to the subtraction problem? (Signal.) 33.

(Display:) [39:5A]

$$\begin{array}{r} 6 \\ 55 \overline{)308} \\ \underline{-330} \\ 33 \end{array} \qquad \begin{array}{r} 5 \\ 55 \overline{)308} \\ \underline{-275} \\ 33 \end{array}$$

Here's what you should have.

- Write the remainder as a fraction and box the answer. ✓

(Add to show:) [39:5B]

$$\begin{array}{r} 6 \\ 55 \overline{)308} \\ \underline{-330} \\ 33 \end{array} \qquad \begin{array}{r} \boxed{5 \frac{33}{55}} \\ 55 \overline{)308} \\ \underline{-275} \\ 33 \end{array}$$

Here's what you should have.

- What's the whole answer? (Signal.) 5 and 33/55.

- d. Copy problem B. Multiply and write the subtraction problem. Raise your hand when you know if the answer is too large.

(Observe students and give feedback.)

- Everybody, is the answer too large? (Signal.) No.

- e. Work the subtraction problem and write the remainder as a fraction.

(Observe students and give feedback.)

- Everybody, what's the whole answer?

(Signal.) 6 and 20/25.

(Display:) [39:5C]

$$\begin{array}{r} \boxed{6 \frac{20}{25}} \\ 25 \overline{)170} \\ \underline{-150} \\ 20 \end{array}$$

Here's what you should have.

- f. Copy problem C. Multiply and write the subtraction problem. Raise your hand when you know if the answer is too large.

(Observe students and give feedback.)

- Everybody, is the answer too large?

(Signal.) Yes.

- g. Work a second problem with the correct answer. Stop when you have worked the subtraction problem.

(Observe students and give feedback.)

- Everybody, what's the answer to the subtraction problem? (Signal.) 30.

(Display:) [39:5D]

$$\begin{array}{r} 7 \\ 78 \overline{)498} \\ \underline{-546} \\ 30 \end{array} \qquad \begin{array}{r} 6 \\ 78 \overline{)498} \\ \underline{-468} \\ 30 \end{array}$$

Here's what you should have.

- Write the remainder as a fraction. ✓

(Add to show:) [39:5E]

$$\begin{array}{r} 7 \\ 78 \overline{)498} \\ \underline{-546} \\ 30 \end{array} \qquad \begin{array}{r} \boxed{6 \frac{30}{78}} \\ 78 \overline{)498} \\ \underline{-468} \\ 30 \end{array}$$

Here's what you should have.

- What's the whole answer? (Signal.) 6 and 30/78.

EXERCISE 6: RATIO AND PROPORTION

WORD PROBLEMS: MIXED SET

REMEDY

- a. Find part 2 in your textbook. ✓

(Teacher reference:)

- On a ship there were 2 crew members for every 10 passengers. There were 600 passengers on the ship. How many crew members were on the ship?
- On another ship there were 6 women for every 5 men. There were 80 men on the ship. How many adults were on the ship?
- The ratio of new buildings to old buildings in a neighborhood was 4 to 7. There were 200 new buildings. How many total buildings were in the neighborhood?
- The ratio of cows to all animals on a farm was 5 to 9. There were 72 animals on the farm. How many cows were on the farm?

Part 2	
a	
b	
c	
d	

Some of these problems have three names. Some have only two names. For the problems that have three names, you'll write the three ratio numbers. For the problems that have two names, you'll just work the problem.

- b. Problem A: On a ship there were 2 crew members for every 10 passengers. There were 600 passengers on the ship. How many crew members were on the ship?

- Does that problem have two names or three names? (Signal.) *2 names*.
Yes, the names are crew members and passengers.

- c. Problem B: On another ship there were 6 women for every 5 men. There were 80 men on the ship. How many adults were on the ship?

- Does that problem have two names or three names? (Signal.) *3 names*.
Yes, the names are women, men, and adults.

- d. Problem C: The ratio of new buildings to old buildings in a neighborhood was 4 to 7. There were 200 new buildings. How many total buildings were in the neighborhood?

- Does that problem have two names or three names? (Signal.) *3 names*.
Yes, the names are new buildings, old buildings, and buildings.

(Repeat until firm.)

- e. Go back to problem A and work the problem. Remember, if the problem has only two names, you don't make a box. Pencils down when you're finished.

(Observe students and give feedback.)

- f. Check your work.
- Did you write three ratio numbers? (Signal.) *No*.
 - You worked the ratio problem for crew members and passengers. The problem asks: How many crew members were on the ship? What's the whole answer? (Signal.) *120 crew members*.

(Display:) [39:6A]

$$a. \frac{c}{p} \frac{2}{10} \left(\frac{60}{60} \right) = \frac{120 \text{ crew members}}{600}$$

Here's what you should have.

- g. Work problem B. Pencils down when you're finished.

(Observe students and give feedback.)

- h. Check your work.
- Did you write three ratio numbers? (Signal.) *Yes*.
 - You worked the ratio problem for men and adults. The problem asks: How many adults were on the ship? What's the whole answer? (Signal.) *176 adults*.

(Display:) [39:6B]

$$b. \frac{w}{m} \frac{6}{5} \left(\frac{16}{16} \right) = \frac{80}{176 \text{ adults}}$$

Here's what you should have.

- i. Work problem C. Pencils down when you're finished.

(Observe students and give feedback.)

- j. Check your work.
- Did you write three ratio numbers? (Signal.) *Yes*.
 - You worked the ratio problem for new buildings and total buildings. The problem asks: How many total buildings were in the neighborhood? What's the whole answer? (Signal.) *550 buildings*.

(Display:) [39:6C]

$$c. \frac{n}{o} \frac{4}{7} \left(\frac{50}{50} \right) = \frac{200}{550 \text{ buildings}}$$

Here's what you should have.

- k. Work problem D. Pencils down when you're finished.

(Observe students and give feedback.)

- l. Check your work.
- Did you write three ratio numbers? (Signal.) *No*.
 - You worked the ratio problem for cows and animals. The problem asks: How many cows were on the farm? What's the whole answer? (Signal.) *40 cows*.

(Display:) [39:6D]

$$d. \frac{c}{a} \frac{5}{9} \left(\frac{8}{8} \right) = \frac{40 \text{ cows}}{72}$$

Here's what you should have.

- m. Remember, if a problem has only two names, you work a ratio problem with those names.

Assign Independent Work, Textbook parts 3–7 and Workbook parts 4–6.

Optional extra math-fact practice worksheets are available on ConnectED.

LESSON 39

Independent Work

Part 4 Complete the table to show equivalent values.

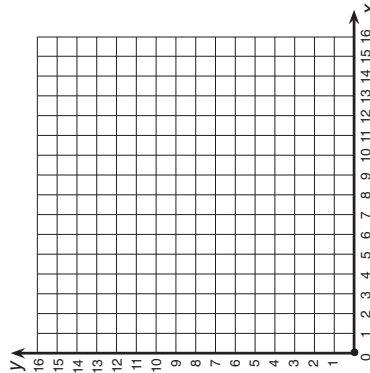
	Decimal	Fraction
a.	30.5	
b.		$\frac{6}{100}$
c.	1.00	
d.	.725	
e.		$\frac{89}{10}$

Part 5 Complete the table to show equivalent values.

	Fraction	Decimal	Percent
a.			146%
b.	$\frac{193}{100}$		
c.		4.81	
d.	$\frac{54}{100}$		

Part 6 Plot points A and B. Draw the line. Then plot points C through E, and complete the table.

X	Y
A	12
B	9
C	6
D	
E	15



LESSON 39

Part 1 Figure out what each letter equals.

a. $\frac{2}{5} P = 20$ b. $\frac{3}{2} j = 6$

$1P = \square = \square$ $1j = \square = \square$

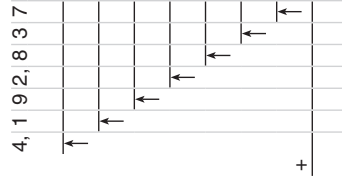
Part 2 Work each problem.

a.
$$\begin{array}{r} 403 \\ - 215 \\ \hline \end{array}$$

b.
$$\begin{array}{r} 207 \\ - 148 \\ \hline \end{array}$$

c.
$$\begin{array}{r} 700 \\ - 353 \\ \hline \end{array}$$

Part 3 Write the place value for each digit. Then add.



LESSON 39

Part 4 Write each number.

- 5 million 760 thousand thirteen.
- 2 million 4 thousand 24.

Part 4	
a.	
b.	

Part 5 Work each problem. Write the answer as a whole number or mixed number.

- What's $\frac{4}{3}$ of 63?
- What's $\frac{4}{3}$ of 30?

Part 5	
a.	
b.	

Part 6 Work each problem.

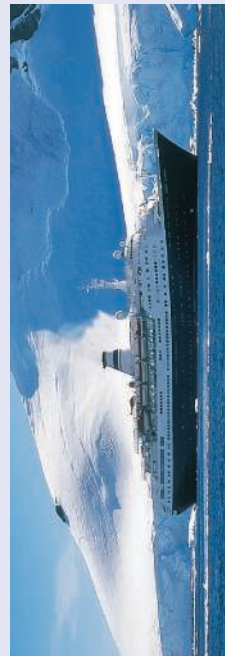
- R is 112 more than V. R is 127. What number is V?
- B is 168. K is 98 more than B. What number is K?

Part 6	
a.	
b.	

Part 7 Write each fraction as a division problem. Figure out the whole number or mixed number it equals.

- $\frac{78}{3}$
- $\frac{794}{6}$

Part 7	
a.	
b.	



Connecting Math Concepts

Lesson 39

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LESSON 39

Part 1 Copy and work each problem.

- $55 \overline{)308}$
- $25 \overline{)170}$
- $78 \overline{)498}$

Part 1	
a.	
b.	
c.	

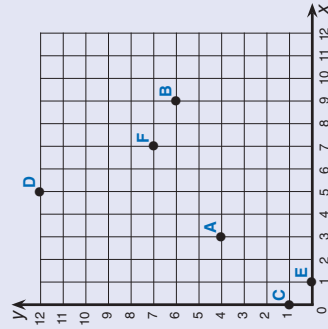
Part 2 Work each problem.

- On a ship there were 2 crew members for every 10 passengers. There were 600 passengers on the ship. How many crew members were on the ship?
- On another ship there were 6 women for every 5 men. There were 80 men on the ship. How many adults were on the ship?
- The ratio of new buildings to old buildings in a neighborhood was 4 to 7. There were 200 new buildings. How many total buildings were in the neighborhood?
- The ratio of cows to all animals on a farm was 5 to 9. There were 72 animals on the farm. How many cows were on the farm?

Part 2	
a.	
b.	
c.	
d.	

Independent Work

Part 3 Write the coordinates for each point.



Part 3	
A.	(,)
B.	(,)
C.	(,)
D.	(,)
F.	(,)

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Connecting Math Concepts