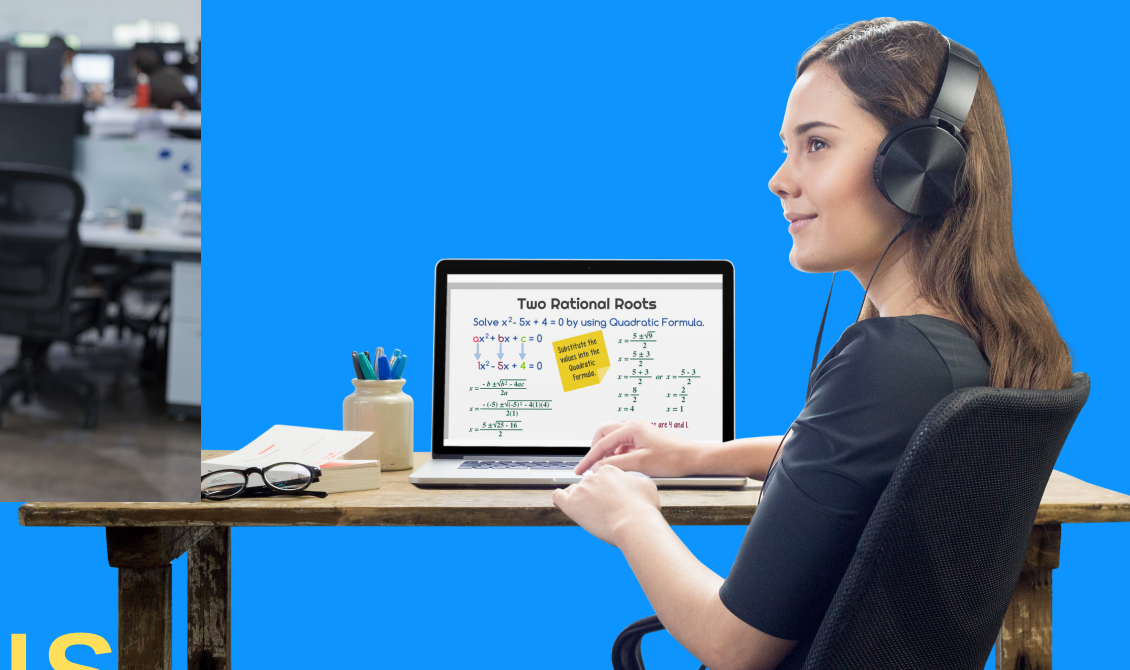


DECIMALS, PERCENT, FRACTIONS

ULTIMATE MATH GUIDE

30***ONLINE MATH VIDEO LESSONS***** STUDY GUIDE AND PRACTICE DAILY SKILLS FOR EVERY LESSON WITH ANSWERS**

ABOUT THE AUTHORS



Maria Torriente is currently a **Math teacher** at Miami Dade County Public Schools successful experience in teaching Mathematics. Maria is the FOUNDER and CEO of Excel Mathematics Learning Center and **Excel Mathematics online class videos** to assist students with practical tools **to help them succeed.**



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ULTIMATE

MATH

GUIDE

& HOW THEY WORK TOGETHER

MARIA TORRIENTE , JUAN
JORRIN



DECIMALS, PERCENT, AND FRACTIONS

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CHAPTER #2: FRACTIONS

CHAPTER #3: PERCENT

INTRODUCTION

Did you know that 100 percent of my students improve their math skills when they know the concepts and work with decimals, fractions, and percent?

I know it's fun to talk about all of the strategies and variations and cool things we can do with word problems and solve any problem because they see the concept of numbers and their applications in daily life situations.

In fact, over the past years, we have helped thousands of students be successful in the classroom and prepared them to be ready for college and university.

A few years later, when I started teaching Math, just like everyone else, instead of focusing on teaching the concepts alone, the fundamentals, I began to teach math skills strategies...

Why?

Because they are fun to talk about and students get so excited when they see that using their memory to memorize the steps and solve the problem is amazing how applying the concepts, their abilities in Math improve so quickly.

THE FUNDAMENTALS

When I was in middle school, I realized that some students didn't understand the teacher in math class because they didn't explain all steps by step to get to the final answer.

I looked at my classmates and saw their faces so distracted because they couldn't understand what the teacher was saying. So, for many years I dedicated teaching my classmates the step-by-step solutions to get into the answers.

So, we wanted to put together this FREE e-book to continue helping students and inviting you to be part of the community in our platform at <https://www.excelmathematics.com>, and give you the only three things that you have to do to have success. I hope that you will make up in increased clarity and focus.

HOW THE THREE CHAPTERS WORK TOGETHER

Let me show you what it looks like:

CHAPTER #1

DECIMALS

The first chapter I want to share with you is my experience in the classroom from years working one on one, differentiated instructions, class groups, and with my students. They improve their math skills immensely when they know the concept of decimals, how to represent decimals in standard form and expanded form, and how to work all operations with decimals.

CHAPTER #2

FRACTIONS

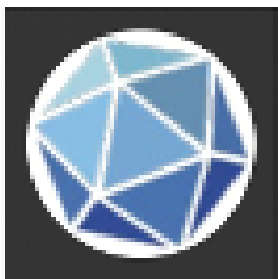
The second chapter is Fractions. This topic is crucial in learning Math, and it is a fundamental base of concepts and applications. When you master the idea, it is easy to solve any real-life involving addition, subtracting, multiplication, and division of fractions.

CHAPTER #3

DECIMALS

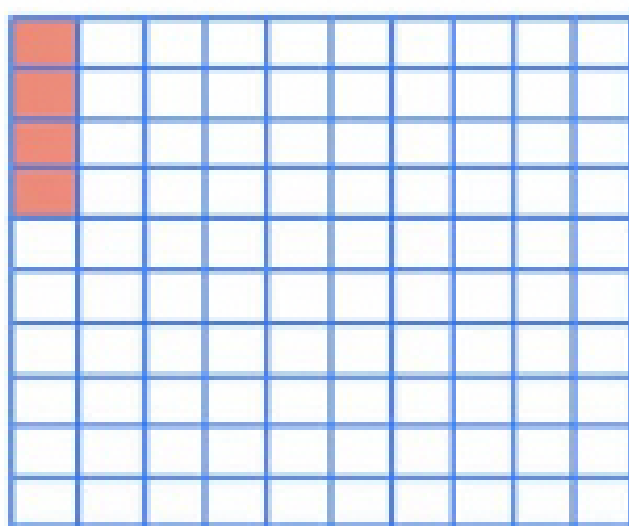
The third chapter is about percent. If you want to buy a house, find taxes after purchasing anything, buy your car, or go to a restaurant and ask for a tip. Knowing how to find the percentage will help you understand all operations they use to give the final account. That's why it's so important to have the abilities in this critical chapter.

LESSON 1.01 REPRESENTING DECIMALS

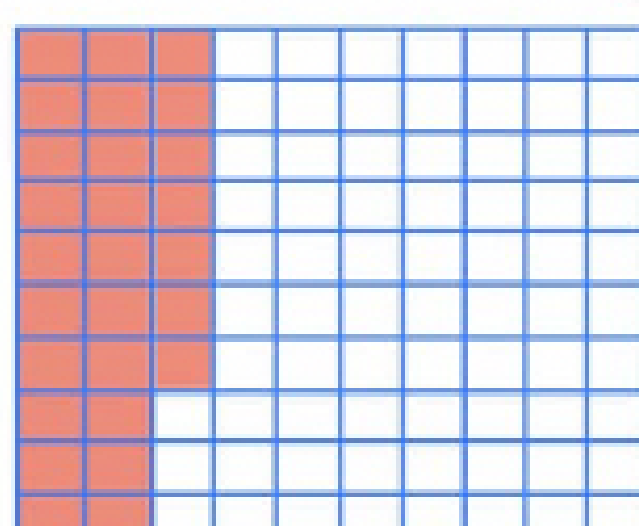


Representing Decimals Using Models

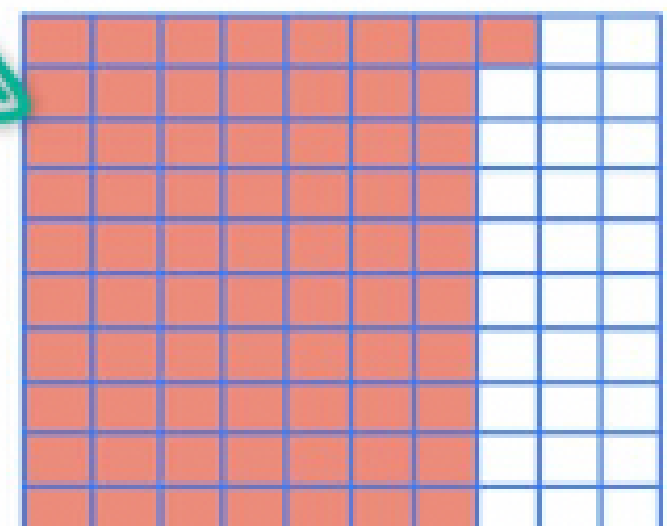
Write the decimal represented by each model.



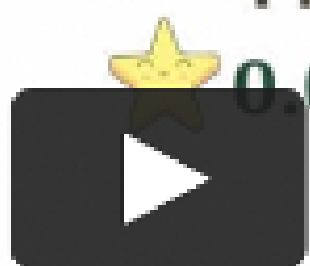
4 squares shaded
4 hundredths



27 squares shaded
27 hundredths



71 squares shaded



08:37

0.27



- How to represent decimals in word form, standard form, and expanded form

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.01 Representing Decimals

Decimals can be written in standard form and expanded form.

Standard form is the usual way to write a decimal, such as 3.52. Expanded form is a sum of the products of each digit and its place, such as $(3 \times 1) + (5 \times 0.1) + (2 \times 0.01)$.

EXAMPLE 1

Write 128.0732 in word form.

Place-Value Chart							
thousands	hundreds	tens	ones	tenths	hundredths	thousandths	ten-thousandths
0	1	2	8	0	7	3	2

In words, 128.0732 is one hundred twenty-eight and seven hundred thirty-two ten-thousandths.

EXAMPLE

Write ninety-nine and two hundred seven thousandths in standard form and expanded form.

Place-Value Chart							
thousands	hundreds	tens	ones	tenths	hundredths	thousandths	ten-thousandths
0	0	9	9	2	0	7	0

Standard form: 99.207

Expanded form: $(9 \times 10) + (9 \times 1) + (2 \times 0.1) + (0 \times 0.01) + (7 \times 0.001)$

Name: _____ Date _____ Score _____

PRACTICE

1.01 Representing Decimals

Write each decimal in word form.

1. 6.5

2. 0.83

3. 12.001

4. 0.3

5. 5.67

6. 0.5214

7. 39.2

8. 14.006

9. 12.0905

Write each decimal in standard form and expanded form.

10. three tenths

11. eight and four hundredths

12. one hundred and one hundredth

13. four hundred seven ten-thousandths

14. fifteen and one tenth

15. seventy-two and sixteen thousandths

16. four hundred seven thousandths

17. one hundred and one thousandth

18. Express $(2 \times 100) + (3 \times 10) + (1 \times 1) + (4 \times 0.1) + (5 \times 0.01)$ in word form.

Name: _____ Date _____ Score _____


PRACTICE

1.01 Representing Decimals

Answers

- | | |
|---|---|
| 1. six and five tenths | 12. 100.01; $(1 \times 100) + (0 \times 10) + (0 \times 1) + (0 \times 0.1) + (1 \times 0.01)$ |
| 2. eighty-three hundredths | 13. 0.0407; $(0 \times 0.1) + (4 \times 0.01) + (0 \times 0.001) + (7 \times 0.0001)$ |
| 3. twelve and one thousandth | 14. 15.1; $(1 \times 10) + (5 \times 1) + (1 \times 0.1)$ |
| 4. three tenths | 15. 72.016; $(7 \times 10) + (2 \times 1) + (0 \times 0.1) + (1 \times 0.01) + (6 \times 0.001)$ |
| 5. five and sixty-seven hundredths | 16. 0.407; $(4 \times 0.1) + (0 \times 0.01) + (7 \times 0.001)$ |
| 6. five thousand two hundred fourteen ten-thousandths | 17. 100.001 ; $(1 \times 100) + (0 \times 10) + (0 \times 1) + (0 \times 0.1) + (0 \times 0.01) + (1 \times 0.001)$ |
| 7. thirty-nine and two tenths | 18. two hundred thirty-one and forty-five hundredths |
| 8. fourteen and six thousandths | |
| 9. twelve and nine hundred five ten-thousandths | |
| 10. 0.3; (3×0.1) | |
| 11. 8.04; $(8 \times 1) + (0 \times 0.1) + (4 \times 0.01)$ | |

LESSON 1.02 COMPARING AND ORDERING DECIMALS



Ordering Decimals

Order 20.2, 20.36, 20, 20.22 and 20.9 from least to greatest.


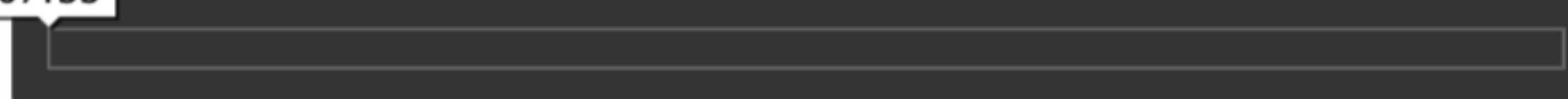



Line up the decimals.

Add zeros to the right of the last digits so each of them has the same number of decimal places.

Now, we can compare decimals using place value!

20.20	→	20.00
20.36		20.20
20.00		20.22
20.22		20.36
20.90		20.90

★ The order from least to greatest is 20, 20.2, 20.22, 20.36 and 20.9.

 07:33    

- How to compare and order decimals.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.02 Comparing and Ordering Decimals

EXAMPLE 1

Use $>$ or $<$ to compare 68.563 and 68.5603.

First, line up the decimal points.

68.563
68.5603

Then, starting at the left, find the first place the digits differ.

Compare the digits.

$3 > 0$

Since $3 > 0$,

$68.563 > 68.5603$

So, 68.563 is greater than 68.5603.

Name: _____ Date _____ Score _____

PRACTICE

1.02 Comparing and Ordering Decimals

Use $>$, $<$, or $=$ to compare each pair of decimals.

1. $2.4 \blacksquare 2.04$

2. $12.05 \blacksquare 12.50$

3. $0.849 \blacksquare 0.0851$

4. $0.0128 \blacksquare 0.128$

5. $28.003 \blacksquare 28.03$

6. $15.6243 \blacksquare 15.6234$

7. $6.23 \blacksquare 6.32$

8. $0.92 \blacksquare 0.095$

9. $12.1 \blacksquare 12.10$

10. $1.4601 \blacksquare 1.460$

11. $0.831 \blacksquare 0.0835$

12. $12.0905 \blacksquare 12.10$

13. $0.02 \blacksquare 0.020$

14. $39.21 \blacksquare 39.021$

15. $21.967 \blacksquare 2.1968$

16. $19.08 \blacksquare 19.079$

17. $39.020 \blacksquare 39.0200$

18. $56.7 \blacksquare 5.67$

Order each set of decimals from least to greatest.

19. 67.39, 68.004, 67.039, 67.04

20. 1.25, 1.52, 1.02, 1.50

Name: _____ Date _____ Score _____

PRACTICE

1.02 Comparing and Ordering Decimals

Answers

1. $>$

2. $<$

3. $>$

4. $<$

5. $<$

6. $>$

7. $<$

8. $>$

9. $=$

10. $>$

11. $>$

12. $<$

13. $=$

14. $>$

15. $>$

16. $>$


17. $=$

18. $>$

19. 67.039, 67.04, 67.39, 68.004

20. 1.02, 1.25, 1.50, 1.52

LESSON 1.03 ROUNDING DECIMALS



Examples:


Given: 2.4632

1. Round to the nearest whole number.

Underline the rounding digit. 2.4632

2 is followed by 4 which is less than 5 so, drop all the digits to the right of 2

2.0



We can see that 2.4 is closer to 2.0 than to 3.0


Thus, 2.4632 rounded to the nearest whole is 2.0.


2. Round to the nearest tenths.

Underline the rounding digit. 2.4632




4 is followed by 6 which is greater than 5 so, add 1 to 4

2.5





06:28



- How to round decimals.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.03 Rounding Decimals

To round a decimal, first underline the digit to be rounded. Then look at the digit to the right of the place being rounded.

- If the digit is 4 or less, the underlined digit remains the same.
- If the digit is 5 or greater, add 1 to the underlined digit.

EXAMPLE 1

Round 6.58 to the nearest tenth.

Underline the digit to be rounded.	Look at the digit to the right of the underlined digit.	Since the digit to the right is 8, add one to the underlined digit.
6. <u>5</u> 8	6. <u>5</u> 8	6.6

To the nearest tenth, 6.58 rounds to 6.6.

Name: _____ Date _____ Score _____

PRACTICE

1.03 Rounding Decimals

Round each decimal to the indicated place-value position.

- | | |
|--------------------------------|--------------------------------|
| 1. 54.38; ones | 2. \$87.01; tens |
| 3. 441.031; ones | 4. 20.2093; hundredths |
| 5. 16.01; tens | 6. 0.2859; hundredths |
| 7. \$10.65; ones | 8. 0.01426; thousandths |
| 9. 0.830528; ten-thousandths | 10. 0.0523413; ten-thousandths |
| 11. 2.671; tenths | 12. 12.0905; tenths |
| 13. 7.892; tenths | 14. 5.5252; ones |
| 15. 0.58; tenths | 16. 145.15455; thousandths |
| 17. 3.0188; thousandths | 18. 4.8255; thousandths |
| 19. 143.09354; ten-thousandths | 20. 137.892; hundredths |

Name: _____ Date _____ Score _____

PRACTICE

1.03 Rounding Decimals

Answers

1. 54

2. \$90

3. 441

4. 20.21

5. 20

6. 0.29

7. \$11

8. 0.014

9. 0.8305

10. 0.0523

11. 2.7

12. 12.1

13. 7.9

14. 6

15. 0.6

16. 145.155

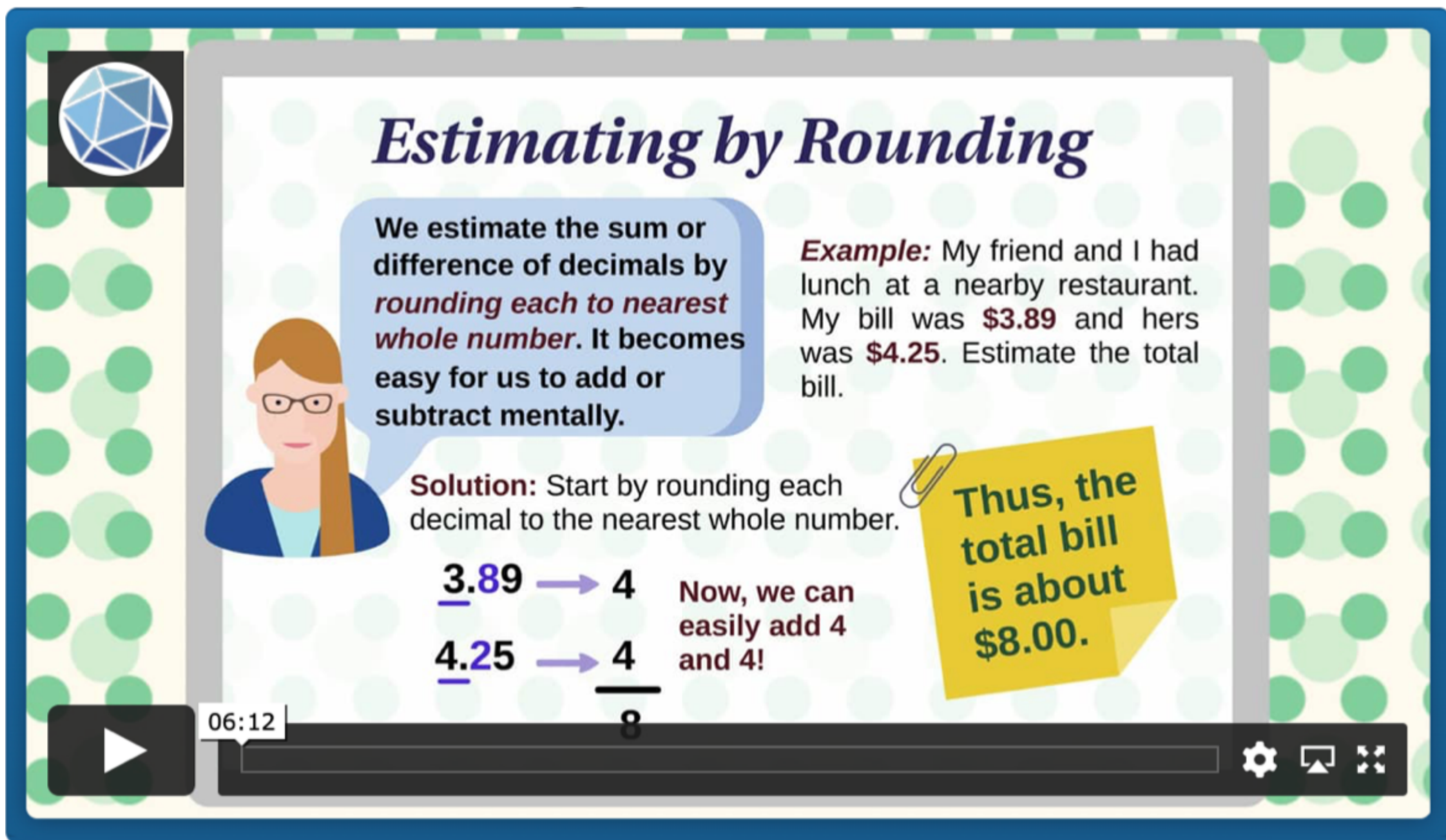
17. 3.019

18. 4.826

19. 143.0935

20. 137.89

LESSON 1.04 ESTIMATING SUMS AND DIFFERENCES



Estimating by Rounding

We estimate the sum or difference of decimals by *rounding each to nearest whole number*. It becomes easy for us to add or subtract mentally.

Example: My friend and I had lunch at a nearby restaurant. My bill was **\$3.89** and hers was **\$4.25**. Estimate the total bill.

Solution: Start by rounding each decimal to the nearest whole number.

3.89 → 4
4.25 → 4

Now, we can easily add 4 and 4!

Thus, the total bill is about **\$8.00**.

06:12

- How to estimate sums and differences of decimals.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.04 Estimating Sums and Differences

Estimation Methods	
Rounding	Estimate by rounding each decimal to the nearest whole number that is easy for you to add or subtract mentally.
Front-End Estimation	Estimate by first adding or subtracting the front digits. Then add or subtract the next digits.
Clustering	Estimate by rounding a group of close numbers to the same number.

EXAMPLE 1

Estimate $14.07 + 43.22$ using front-end estimation.

Add the front digits.

$$\begin{array}{r} 14.07 \\ + 43.22 \\ \hline 5 \end{array}$$

Add the next digits.

$$\begin{array}{r} 14.07 \\ + 43.22 \\ \hline 57.00 \end{array}$$

An estimate for $14.07 + 43.22$ is 57

Name: _____ Date _____ Score _____

PRACTICE

1.04 Estimating Sums and Differences

Estimate using rounding.

1. $2.32 + 2.52$

2. $18.93 + 27.45$

3. $\$13.23 - \2.87

4. $87.146 - 24.953$

5. $\$46.83 + \18.60

6. $43.058 - 15.726$

Estimate using front-end estimation.

7.
$$\begin{array}{r} 51.62 \\ + 6.58 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 4.57360 \\ - 0.58256 \\ \hline \end{array}$$

9.
$$\begin{array}{r} \$233.10 \\ - 23.62 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 820.1 \\ + 3.2 \\ \hline \end{array}$$

11. $652.355 - 52.736$

12. $\$102.34 + \$23.00 + \$32.67$

Name: _____ Date _____ Score _____

PRACTICE

1.04 Estimating Sums and Differences

Cont...

Estimate using clustering.

13. $59.62 + 60.4 + 60 + 61$

14. $8.2 + 7.8 + 7.2 + 7.99$

15. $15.044 + 14.765 + 14.689$

16. $\$4.79 + \$5.29 + 4.99$

17. $89.04 + 87.55 + 90.101 + 91$

18. $\$1.44 + \$0.86 + \$1.00 + \0.7

Name: _____ Date _____ Score _____

PRACTICE

1.04 Estimating Sums and Differences

Answers

1. $2 + 3 = 5$

2. $20 + 30 = 50$

3. $\$13 - \$3 = \$10$

4. $90 - 20 = 70$

5. $\$50 + \$20 = \$70$

6. $40 - 20 = 20$

7. $50 + 7 = 57.00$

8. $4 - 0 = 4.0000$

9. $230 - 20 = \$210.00$

10. $820 + 3 = 823.0$

11. $650 - 50 = 600$

12. $\$100 + \$20 + \$30 = \150

13. $60 + 60 + 60 + 60 = 240$

14. $8 + 8 + 8 + 8 = 32$

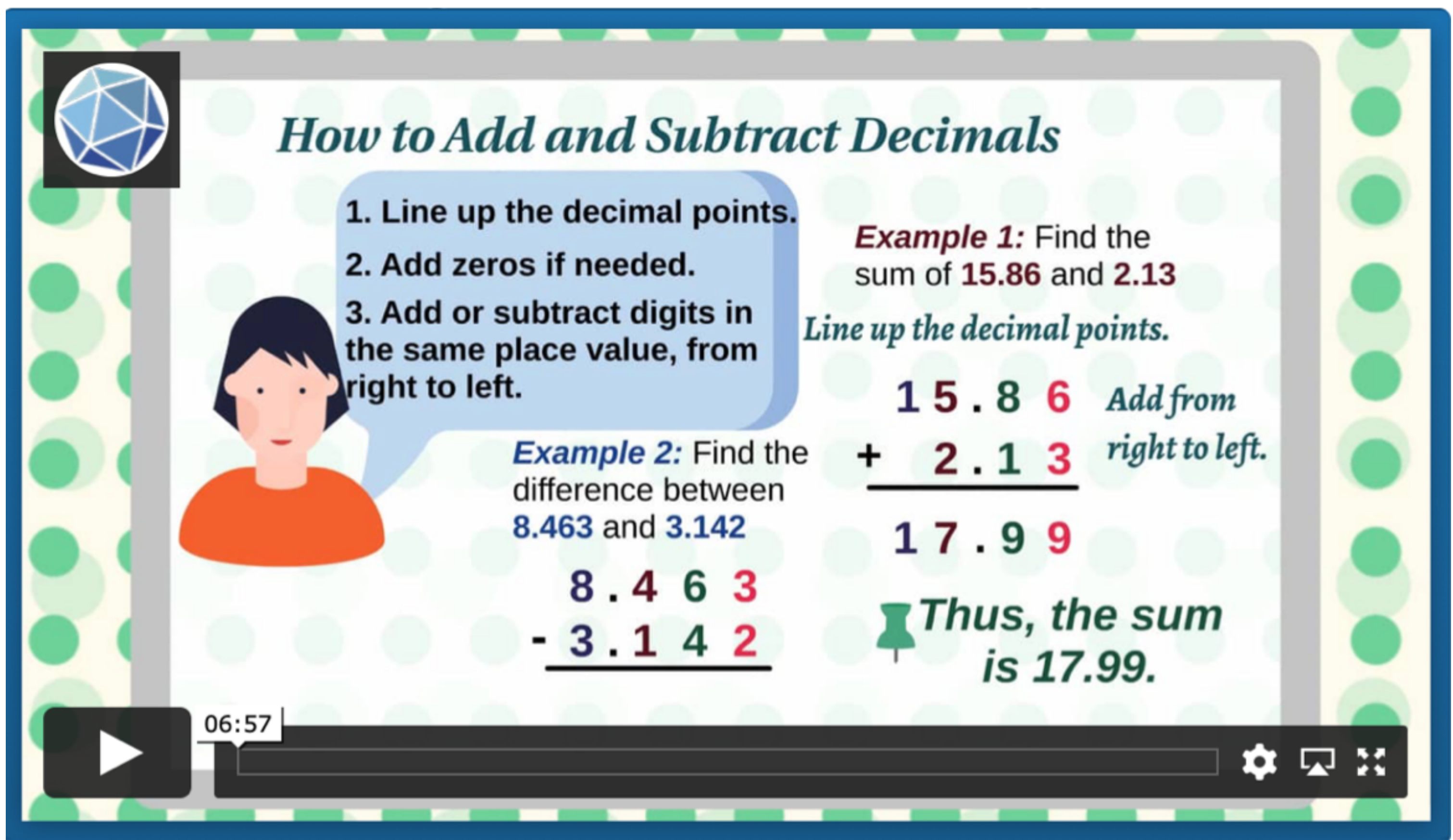
15. $15 + 15 + 15 = 45$

16. $\$5 + \$5 + \$5 = \15

17. $90 + 90 + 90 + 90 = 360$

18. $\$1 + \$1 + \$1 + \$1 = \$4$

LESSON 1.05 ADDING AND SUBTRACTING DECIMALS



How to Add and Subtract Decimals

1. Line up the decimal points.
2. Add zeros if needed.
3. Add or subtract digits in the same place value, from right to left.

Example 1: Find the sum of 15.86 and 2.13

Line up the decimal points.

$$\begin{array}{r} 15.86 \\ + 2.13 \\ \hline 17.99 \end{array}$$

Add from right to left.

Example 2: Find the difference between 8.463 and 3.142

$$\begin{array}{r} 8.463 \\ - 3.142 \\ \hline \end{array}$$

Thus, the sum is 17.99.

06:57

- How to add and subtract decimals.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.05 Adding and Subtracting Decimals

To add or subtract decimals, line up the decimal points then add or subtract digits in the same place-value position. Estimate first so you know if your answer is reasonable.

EXAMPLE 1

Find the sum of $61.32 + 8.26$.

First, estimate the sum using front-end estimation.

$$61.32 + 8.26 \rightarrow 61 + 8 = 69$$

$$61.32$$

$$+ 8.26$$

$$\hline 69.58$$

Since the estimate is close, the answer is reasonable.

EXAMPLE 2

Find $2.65 - 0.2$.

First, estimate the difference using front-end estimation.

$$2.65 - 0.2 \rightarrow 2 - 0 = 2$$

$$2.65$$

$$- 0.2$$

$$\hline 2.45$$

Since the estimate is close, the answer is reasonable.

Name: _____ Date _____ Score _____

PRACTICE

1.05 Adding and Subtracting Decimals

Add or subtract.

1.
$$\begin{array}{r} 0.581 \\ + 11 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 16.79 \\ - 0.51 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 4.78 \\ + 6 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 1.02 \\ - 0.38 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 9.6 \\ + 5.2 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 20.1 \\ + 3.2 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 7.8 \\ - 4.3 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 0.86 \\ + 0.38 \\ \hline \end{array}$$

Add or subtract.

9. $8.5 + 0.5$

10. $3.4 + 3.2 - 6$

11. $19.4 - 7.86$

12. $8.3 + 7.9$

13. $0.485 + 9.32$

14. $4 + 8.5 + 2$

15. $5.21 + 4 + 0.2$

16. $362 - 145.9$

17. $8.3 + 5.41 + 3.2$

18. Evaluate $x + y$ if $x = 2.057$ and $y = 16.3$.

19. Evaluate $b - a$ if $a = 113.04$ and $b = 241.931$.

Find the value of each expression.

20. $16.9 - 2^2$

21. $7 + 2.3 - 5.8$

22. $3.4 \times 2 - 6$

Name: _____ Date _____ Score _____

PRACTICE

1.05 Adding and Subtracting Decimals

Answer

1. **11.581**

2. **16.28**

3. **10.78**

4. **0.64**

5. **14.8**

6. **23.3**

7. **3.5**

8. **1.24**

9. **9.0**

10. **0.6**

11. **11.54**

12. **16.2**

13. **9.805**

14. **14.5**

15. **9.41**

16. **216.1**

17. **16.91**

18. **18.357**

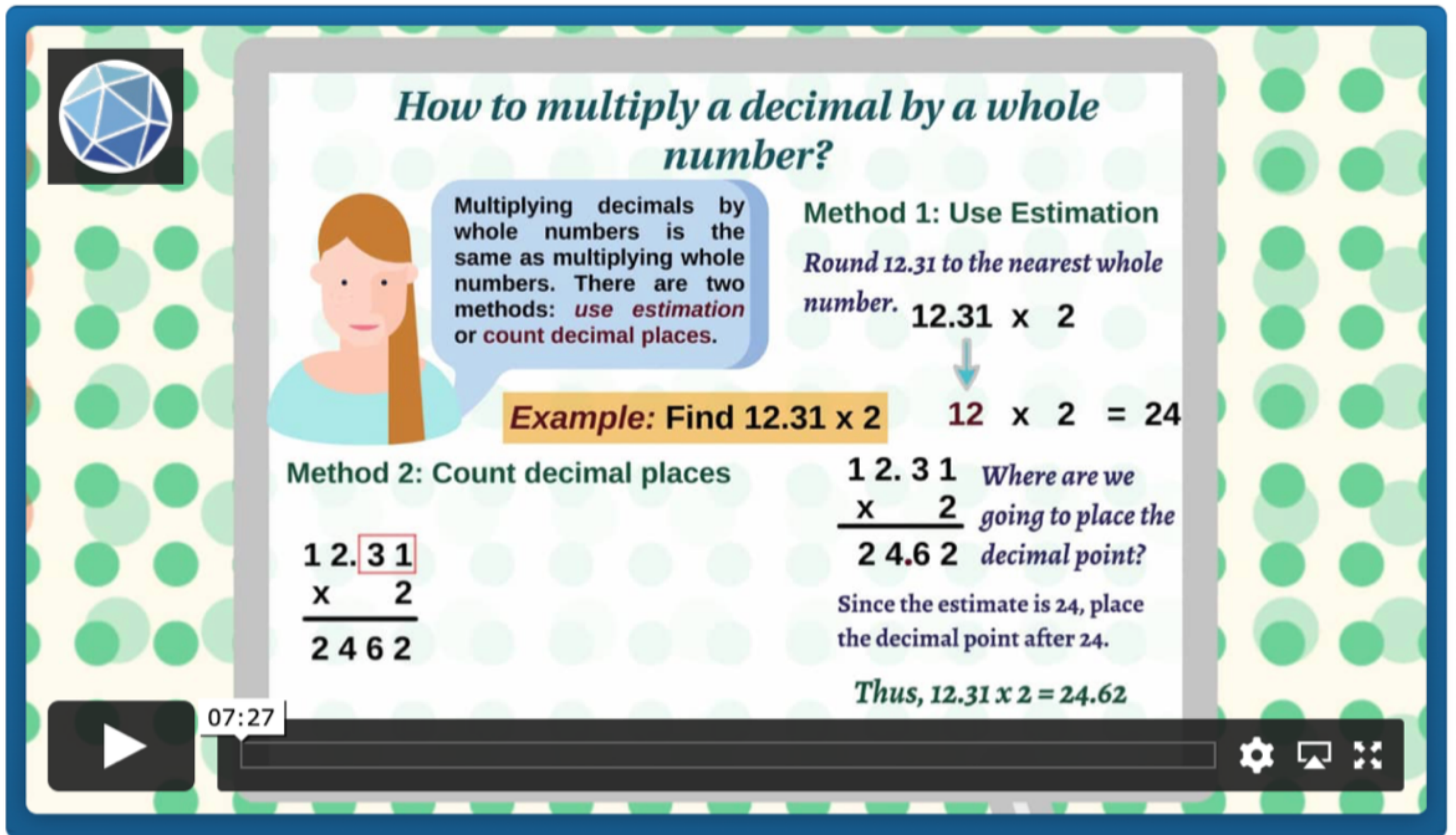
19. **128.891**

20. **12.9**

21. **3.5**

22. **0.8**

LESSON 1.06 MULTIPLYING DECIMALS BY WHOLE NUMBERS



How to multiply a decimal by a whole number?

Multiplying decimals by whole numbers is the same as multiplying whole numbers. There are two methods: *use estimation* or *count decimal places*.

Method 1: Use Estimation
Round 12.31 to the nearest whole number.
 12.31×2
 \downarrow
 $12 \times 2 = 24$

Method 2: Count decimal places
$$\begin{array}{r} 12.31 \\ \times 2 \\ \hline 24.62 \end{array}$$

Example: Find 12.31×2

$$\begin{array}{r} 12.31 \\ \times 2 \\ \hline 24.62 \end{array}$$

Where are we going to place the decimal point?
Since the estimate is 24, place the decimal point after 24.
Thus, $12.31 \times 2 = 24.62$

07:27

- How to estimate and find the product of decimals and whole numbers.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.06 Multiplying Decimals by Whole Numbers

When you multiply a decimal by a whole number, you multiply the numbers as if you were multiplying all whole numbers. Then you use estimation or you count the number of decimal places to decide where to place the decimal point. If there are not enough decimal places in the product, annex zeros to the left.

EXAMPLE 1

Find 6.25×5 .

Method 1 Use estimation.

Round 6.25 to 6.

$6.25 \times 5 \rightarrow 6 \times 5$ or 30

$\begin{array}{r} 6.25 \\ \times 5 \\ \hline 31.25 \end{array}$	<p>Since the estimate is 30 place the decimal point after 31.</p>
---	---

Method 2 Count decimal places.

$\begin{array}{r} 6.25 \\ \times 5 \\ \hline 31.25 \end{array}$	<p>There are two places to the right of the decimal point.</p>
	<p>Count the same number of decimal places from right to left.</p>

Name: _____ Date _____ Score _____

PRACTICE

1.06 Multiplying Decimals by Whole Numbers

Add or subtract.

1.
$$\begin{array}{r} 1.5 \\ \times 3 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 3.47 \\ \times 5 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 6.3 \\ \times 9 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 0.9 \\ \times 6 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 2.08 \\ \times 6 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 0.02 \\ \times 3 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 0.45 \\ \times 5 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 9.14 \\ \times 2 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 9.12 \\ \times 4 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 3.12 \\ \times 8 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 0.82 \\ \times 9 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 27.3 \\ \times 8 \\ \hline \end{array}$$

13. 1.006×4

14. 13×2.5

15. Evaluate $231a$ if $a = 3.6$.

16. Evaluate $42.3t$ if $t = 110$.

Write each number in standard form.

17. 2.6×10^5

18. 5×10^6

19. 3.15×10^4

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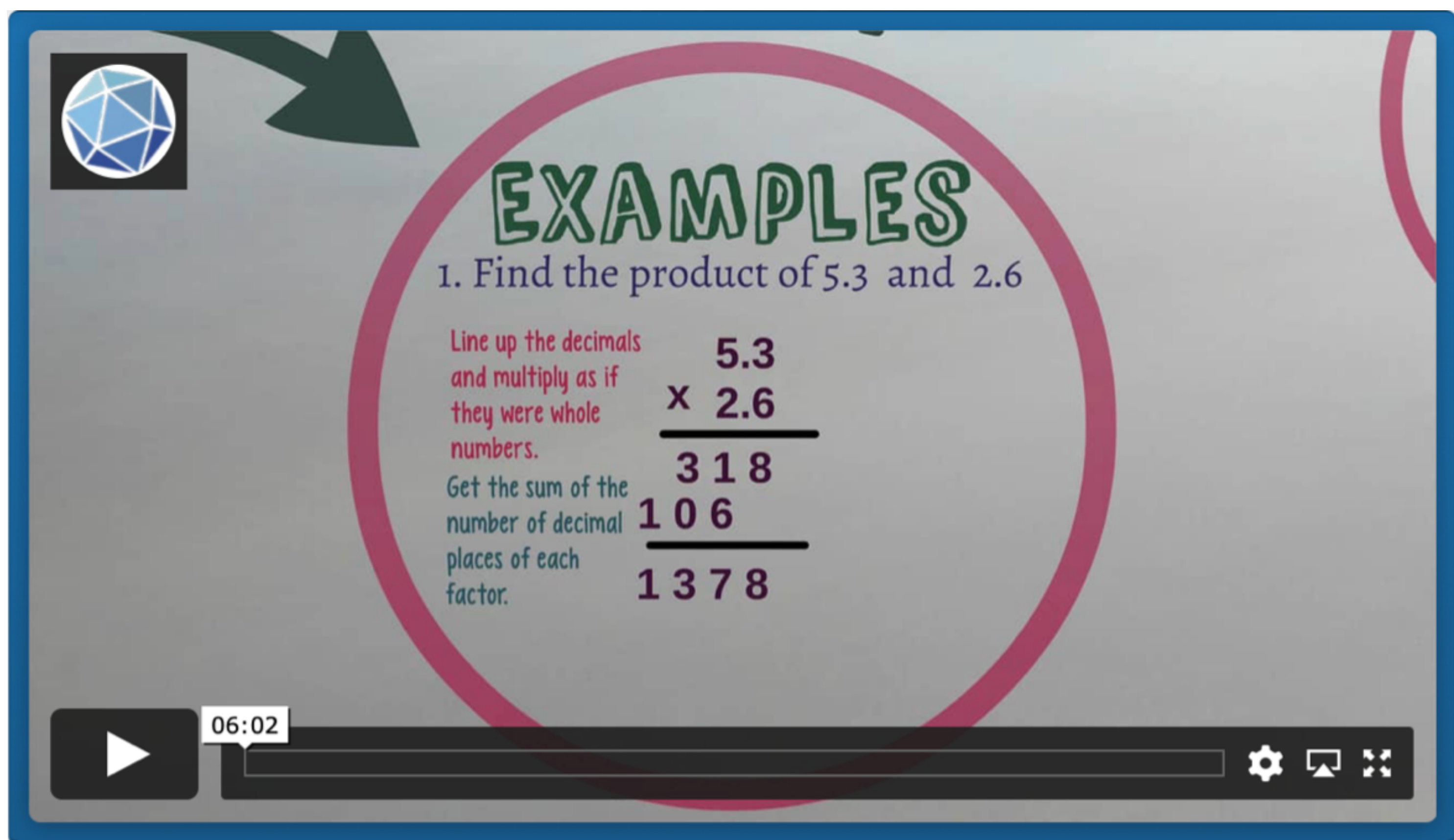
PRACTICE

1.06 Multiplying Decimals by Whole Numbers

Answers

- | | |
|-----------|---------------|
| 1. 4.5 | 11. 7.38 |
| 2. 17.35 | 12. 218.4 |
| 3. 56.7 | 13. 4.024 |
| 4. 5.4 | 14. 32.5 |
| 5. 12.48 | 15. 831.6 |
| 6. 0.06 | 16. 4,653 |
| 7. 2.25 | 17. 260,000 |
| 8. 18.28 | 18. 5,000,000 |
| 9. 36.48 | 19. 31,500 |
| 10. 24.96 | |

LESSON 1.07 MULTIPLYING DECIMALS



The video player displays a lesson titled "EXAMPLES" with the first example being "1. Find the product of 5.3 and 2.6". The instructions are: "Line up the decimals and multiply as if they were whole numbers." and "Get the sum of the number of decimal places of each factor." The multiplication is shown as follows:

$$\begin{array}{r} 5.3 \\ \times 2.6 \\ \hline 318 \\ 106 \\ \hline 1378 \end{array}$$

The video player interface includes a play button, a progress bar, a timestamp of 06:02, and icons for settings, full screen, and a share button.

- How to multiply decimals by decimals.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.07 Multiplying Decimals

When you multiply a decimal by a decimal, multiply the numbers as if you were multiplying all whole numbers. To decide where to place the decimal point, find the sum of the number of decimal places in each factor. The product has the same number of decimal places.

EXAMPLE 1

Find 5.2×6.13 .

Estimate: 5×6 or 30

$$\begin{array}{r}
 5.2 \quad \leftarrow \text{one decimal place} \\
 \times 6.13 \quad \leftarrow \text{two decimal places} \\
 \hline
 156 \\
 52 \\
 312 \\
 \hline
 31.876 \quad \leftarrow \text{three decimal places}
 \end{array}$$

The product is 31.876. Compared to the estimate, the product is reasonable.

Name: _____ Date _____ Score _____

PRACTICE

1.07 Multiplying Decimals

Multiply.

1. 0.3×0.5

2. 2.5×6.7

3. 2.3×1.21

4. 6.5×0.04

5. 5.02×1.07

6. 0.93×6.8

7. 3.007×6.1

8. 2.6×5.46

9. 3.5×24.09

10. 11.04×6.18

11. 1.2×2.1

12. 0.4×8.3

13. 0.6×0.91

14. 8.54×3.27

15. 0.003×2.9

16. 7.1×0.004

17. 2.52×0.15

18. 16.25×1.3

19. 0.025×17.1

20. 14.83×16.7

Name: _____ Date _____ Score _____

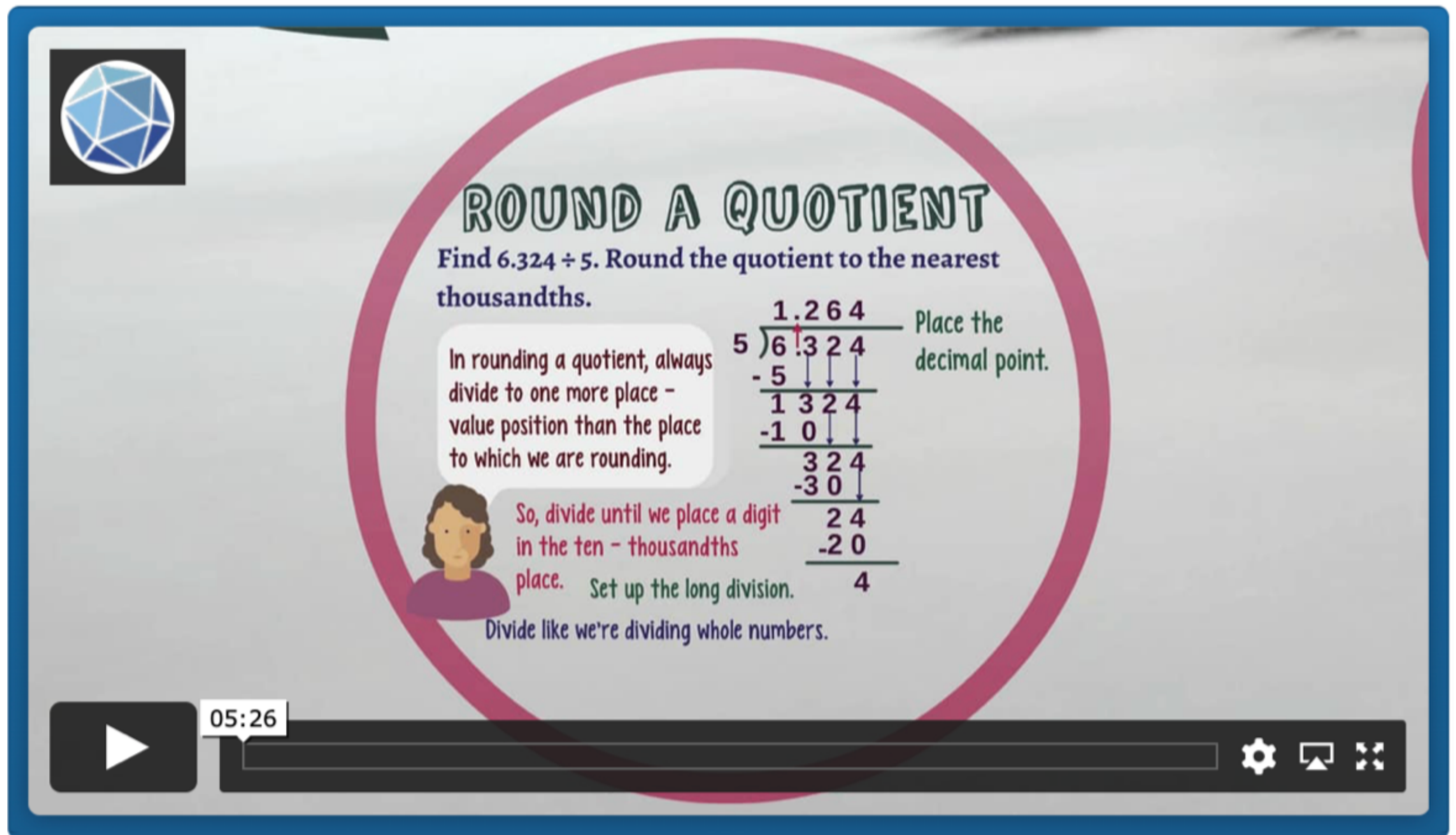
PRACTICE

1.07 Multiplying Decimals

Answers

- | | |
|-------------|-------------|
| 1. 0.15 | 11. 2.52 |
| 2. 16.75 | 12. 3.32 |
| 3. 2.783 | 13. 0.546 |
| 4. 0.26 | 14. 27.9258 |
| 5. 5.3714 | 15. 0.0087 |
| 6. 6.324 | 16. 0.0284 |
| 7. 18.3427 | 17. 0.378 |
| 8. 14.196 | 18. 21.125 |
| 9. 84.315 | 19. 0.4275 |
| 10. 68.2272 | 20. 247.661 |

LESSON 1.08 DIVIDING DECIMALS BY WHOLE NUMBERS



ROUND A QUOTIENT
Find $6.324 \div 5$. Round the quotient to the nearest thousandths.

In rounding a quotient, always divide to one more place - value position than the place to which we are rounding.

So, divide until we place a digit in the ten - thousandths place. Set up the long division.
Divide like we're dividing whole numbers.

Place the decimal point.

$$\begin{array}{r} 1.264 \\ 5 \overline{) 6.324} \\ \underline{-5} \\ 1 \\ \underline{-1} \\ 3 \\ \underline{-3} \\ 2 \\ \underline{-2} \\ 4 \end{array}$$

05:26

- How to divide decimals by whole numbers.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.08 Dividing Decimals by Whole Numbers

When you divide a decimal by a whole number, place the decimal point in the quotient above the decimal point in the dividend. Then divide as you do with whole numbers.

EXAMPLE 1

Find $8.73 \div 9$.

Estimate $9 \div 9 = 1$.

0.97

←

Place the decimal point directly above the decimal point in the quotient.

9

)

8.73

—

–0

—

87

–81

—

63

–63

—

0

Divide as with whole numbers.

$8.73 \div 9 = 0.97$ Compared to the estimate, the quotient is reasonable.

Name: _____ Date _____ Score _____

PRACTICE

1.08 Dividing Decimals by Whole Numbers

Divide. Round to the nearest tenth if necessary.

1. $3 \overline{)9.6}$

2. $2 \overline{)16.08}$

3. $11 \overline{)132.22}$

4. $79.2 \div 9$

5. $217.14 \div 21$

6. $8 \overline{)20.72}$

7. $15 \overline{)57.48}$

8. $34 \overline{)317.594}$

9. $42.48 \div 18$

10. $5 \overline{)5.15}$

11. $7 \overline{)24.64}$

12. $16 \overline{)142.4}$

13. $47.4 \div 15$

14. $5 \overline{)34.65}$

15. $10 \overline{)72.6}$

16. $25 \overline{)264.5}$

17. $122.32 \div 11$

18. $323.316 \div 24$

Name: _____ Date _____ Score _____

PRACTICE

1.08 Dividing Decimals by Whole Numbers

Answers

1. 3.2

2. 8.0

3. 12.0

4. 8.8

5. 10.3

6. 2.6

7. 3.8

8. 9.3

9. 2.4

10. 1.0

11. 3.5

12. 8.9

13. 3.2

14. 6.9

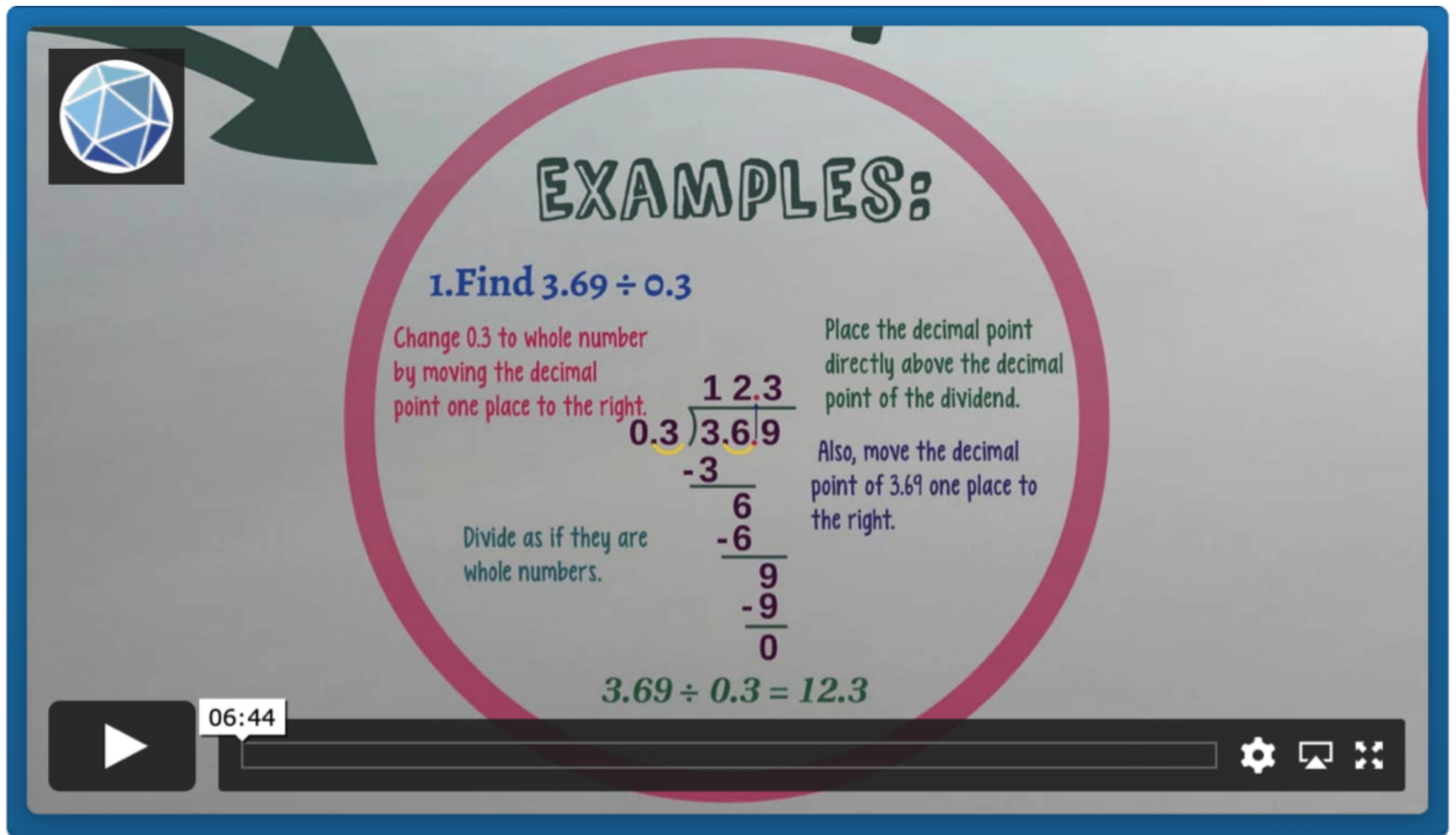
15. 7.3

16. 10.6

17. 11.1

18. 13.5

LESSON 1.09 DIVIDING DECIMALS



The video player shows a lesson on dividing decimals. The title "LESSON 1.09 DIVIDING DECIMALS" is at the top. The video content includes a large pink circle with the word "EXAMPLES:" inside. Below this, the first example is "1. Find $3.69 \div 0.3$ ". The video explains how to move the decimal point one place to the right in both the divisor (0.3) and the dividend (3.69) to make them whole numbers (3 and 369). The division is then performed as if they were whole numbers, resulting in 12.3. The final result is $3.69 \div 0.3 = 12.3$. The video player interface includes a play button, a progress bar showing 06:44, and settings, full screen, and share icons.

EXAMPLES:

1. Find $3.69 \div 0.3$

Change 0.3 to whole number by moving the decimal point one place to the right.

Place the decimal point directly above the decimal point of the dividend.

Also, move the decimal point of 3.69 one place to the right.

Divide as if they are whole numbers.

$$\begin{array}{r} 12.3 \\ 0.3 \overline{) 3.69} \\ \underline{-3} \\ 6 \\ \underline{-6} \\ 9 \\ \underline{-9} \\ 0 \end{array}$$

$3.69 \div 0.3 = 12.3$

- How to divide decimals by decimals

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.09 Dividing Decimals

When you divide a decimal by a decimal, multiply both the divisor and the dividend by the same power of ten. Then divide as with whole numbers.

Example 1

Find $10.14 \div 5.2$.

Estimate: $10 \div 5 = 2$

Multiply by 10 to make a whole number.

5.2) 10.14

Multiply by the same number, 10.

$$\begin{array}{r}
 1.95 \\
 52 \overline{) 101.40} \\
 \underline{- 52} \\
 494 \\
 \underline{- 468} \\
 260 \\
 \underline{- 260} \\
 0
 \end{array}$$

Place the decimal point.

Divide as with whole numbers.

Annex a zero to continue.

Compare to the estimate.

10.14 divided by 5.2 is 1.95.

Check: $1.95 \times 5.2 = 10.14$ ✓

Name: _____ Date _____ Score _____

PRACTICE

1.09 Dividing Decimals

Divide. Round to the nearest hundredth if necessary.

1. $0.2 \overline{)4.86}$

2. $1.2 \overline{)14.4}$

3. $1.32 \overline{)3.96}$

4. $0.105 \div 0.5$

5. $3.825 \div 2.5$

6. $0.8 \overline{)0.9944}$

7. $0.75 \overline{)13.59}$

8. $4.02 \overline{)16.1604}$

9. $246.3293 \div 13.3$

10. $0.7 \overline{)2.52}$

11. $3.8 \overline{)17.1}$

12. $34.9 \overline{)628.2}$

13. $1.296 \div 0.16$

14. $0.5 \overline{)8.253}$

15. $0.32 \overline{)1.50048}$

16. $1.8 \overline{)4.4208}$

17. $160.3639 \div 25.1$

18. $106.288 \div 6.5$

Name: _____ Date _____ Score _____

PRACTICE

1.09 Dividing Decimals

Answers

- | | |
|--------------------|---------------------|
| 1. 24.3 | 10. 3.6 |
| 2. 12 | 11. 4.5 |
| 3. 3 | 12. 18 |
| 4. 0.21 | 13. 8.1 |
| 5. 1.53 | 14. ≈ 16.51 |
| 6. ≈ 1.24 | 15. ≈ 4.69 |
| 7. 18.12 | 16. ≈ 2.46 |
| 8. 4.02 | 17. ≈ 6.39 |
| 9. ≈ 18.52 | 18. ≈ 16.35 |

LESSON 1.10 WRITING DECIMALS AS FRACTIONS

Steps in Converting a Decimal into a Fraction

1. Determine the place value of the last digit of the decimal.
2. Convert the decimal into a fraction using the place value as the denominator and the decimal digits as the numerator.
3. Simplify if necessary.

Example: 0.12

2 is the last digit and it's in the hundredths place.
means 12 hundredths

$GCF(12, 100) = 4$

$\frac{12}{100} = \frac{3}{25}$

05:33

- How to write decimals as fractions or mixed numbers in simplest form

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.10 Writing Decimals as Fractions

Any fraction can be written as a decimal using division. Decimals like 0.5 and 0.516 are called terminating decimals because the digits end. A decimal like $0.\overline{87} = 0.878787 \dots$ is called a repeating decimal because the digits repeat.

EXAMPLE 1

Write $\frac{3}{8}$ as a decimal.

Divide.

$$\begin{array}{r}
 0.375 \\
 8 \overline{) 3.000} \\
 \underline{-24} \\
 60 \\
 \underline{-56} \\
 40 \\
 \underline{-40} \\
 0
 \end{array}$$

Therefore, $\frac{3}{8} = 0.375$.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.10 Writing Decimals as Fractions

Decimals like 0.58, 0.12, and 0.08 can be written as fractions.

To write a decimal as a fraction, you can follow these steps.

- Identify the place value of the last decimal place.
- Write the decimal as a fraction using the place value as the denominator.
- If necessary, simplify the fraction.

EXAMPLE 1

Write 0.5 as a fraction in simplest form.

$$0.5 = \frac{5}{10} \quad 0.5 \text{ means five tenths.}$$

$$= \frac{\cancel{5}^1}{\cancel{10}^2} \quad \text{Simplify. Divide the numerator and denominator by the GCF, 5.}$$

$$= \frac{1}{2} \quad \text{So, in simplest form, 0.5 is } \frac{1}{2}.$$

EXAMPLE 2

Write 0.35 as a fraction in simplest form.

$$0.35 = \frac{35}{100} \quad 0.35 \text{ means 35 hundredths.}$$

$$= \frac{\cancel{35}^7}{\cancel{100}^{20}} \quad \text{Simplify. Divide the numerator and denominator by the GCF, 5.}$$

$$= \frac{7}{20} \quad \text{So, in simplest form, 0.35 is } \frac{7}{20}.$$

Name: _____ Date _____ Score _____

PRACTICE

1.10 | Writing Decimals as Fractions

Write each decimal as a fraction or mixed number in simplest form.

1. 0.6

2. 6.25

3. 9.35

4. 21.5

5. 5.006

6. 2.015

7. 4.95

8. 10.9

9. 4.125

10. 3.56

11. 0.055

12. 3.875

13. 6.48

14. 8.425

15. 0.08

16. 0.075

17. 8.016

18. 7.42

19. 1.29

20. 0.004

21. 9.74

Name: _____ Date _____ Score _____

PRACTICE

1.10 | Writing Decimals as Fractions

Answers

1. $\frac{3}{5}$

12. $3\frac{7}{8}$

2. $6\frac{1}{4}$

13. $6\frac{12}{25}$

3. $9\frac{7}{20}$

14. $8\frac{17}{40}$

4. $21\frac{1}{2}$

15. $\frac{2}{25}$

5. $5\frac{3}{500}$

16. $\frac{3}{40}$

6. $2\frac{3}{200}$

17. $8\frac{2}{125}$

7. $4\frac{19}{20}$

18. $7\frac{21}{50}$

8. $10\frac{9}{10}$

19. $1\frac{29}{100}$

9. $4\frac{1}{8}$

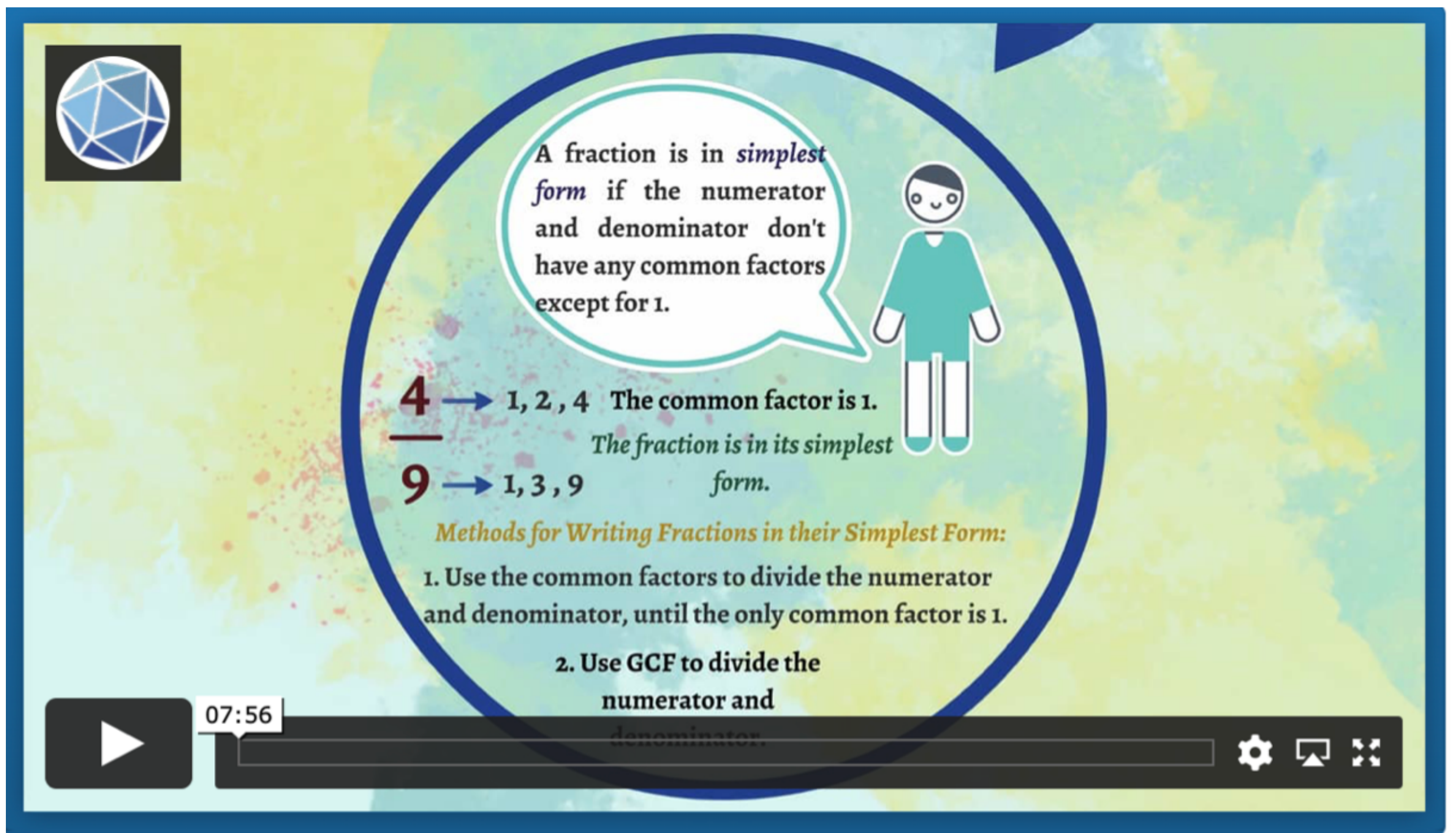
20. $\frac{1}{250}$

10. $3\frac{14}{25}$

21. $9\frac{37}{50}$

11. $\frac{11}{200}$

LESSON 1.11 SIMPLIFYING FRACTIONS



A fraction is in *simplest form* if the numerator and denominator don't have any common factors except for 1.

$\frac{4}{9}$ → 1, 2, 4 The common factor is 1.
→ 1, 3, 9 The fraction is in its simplest form.

Methods for Writing Fractions in their Simplest Form:

1. Use the common factors to divide the numerator and denominator, until the only common factor is 1.
2. Use GCF to divide the numerator and denominator.

07:56

- How to express fractions in simplest form.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.11 Simplifying Fractions

Fractions that name the same number are equivalent fractions. To find equivalent fractions, you can multiply or divide the numerator and denominator by the same nonzero number.

EXAMPLE 1

Replace the ■ with a number so that $\frac{1}{2} = \frac{\blacksquare}{10}$

Since $2 \times 5 = 10$, multiply the numerator and denominator by 5.

$$\begin{array}{cc} \begin{array}{c} \uparrow \times 5 \downarrow \\ \frac{1}{2} = \frac{\blacksquare}{10} \\ \downarrow \times 5 \uparrow \end{array} & \begin{array}{c} \uparrow \times 5 \downarrow \\ \frac{1}{2} = \frac{5}{10} \\ \downarrow \times 5 \uparrow \end{array} \end{array}$$

When the GCF of the numerator and denominator is 1, the fraction is in simplest form. To write a fraction in simplest form, you can divide the numerator and denominator by the GCF.

Name: _____ Date _____ Score _____

PRACTICE

1.11 Simplifying Fractions

Replace each ■ with a number so that the fractions are equivalent.

1. $\frac{1}{5} = \frac{\blacksquare}{35}$

2. $\frac{10}{15} = \frac{2}{\blacksquare}$

3. $\frac{1}{3} = \frac{27}{\blacksquare}$

4. $\frac{\blacksquare}{15} = \frac{2}{5}$

5. $\frac{4}{\blacksquare} = \frac{20}{45}$

6. $\frac{\blacksquare}{7} = \frac{8}{28}$

7. $\frac{1}{6} = \frac{\blacksquare}{24}$

8. $\frac{1}{\blacksquare} = \frac{4}{16}$

9. $\frac{18}{24} = \frac{\blacksquare}{4}$

Write each fraction in simplest form. If the fraction is already in simplest form, write *simplest form*.

10. $\frac{1}{2}$

11. $\frac{6}{15}$

12. $\frac{27}{81}$

13. $\frac{90}{100}$

14. $\frac{8}{10}$

15. $\frac{15}{60}$

16. $\frac{7}{12}$

17. $\frac{8}{21}$

18. $\frac{20}{60}$

19. $\frac{7}{8}$

20. $\frac{28}{36}$ |

21. $\frac{14}{35}$

Name: _____ Date _____ Score _____

PRACTICE

1.11 Simplifying Fractions

Answers

1. 7

2. 3

3. 81

4. 6

5. 9

6. 2

7. 4

8. 4

9. 3

10. simplest form

11. $\frac{2}{5}$

12. $\frac{1}{3}$

13. $\frac{9}{10}$

14. $\frac{4}{5}$

15. $\frac{1}{4}$

16. simplest form

17. simplest form

18. $\frac{1}{3}$

19. simplest form

20. $\frac{7}{9}$

21. $\frac{2}{5}$

LESSON 1.12 CONVERTING FRACTIONS TO DECIMALS

Repeating decimals are decimals with a digit (or digits) that repeat.

0.22222... 1.1575757... 3.141414...

Bar Notation

- placed over the part of the decimal that is repeating

0.22222... 2 is repeating $0.\overline{2}$

05:44

- How to write fractions as terminating and repeating decimals.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.12 Writing Fractions as Decimals

Any fraction can be written as a decimal using division. Decimals like 0.5 and 0.516 are called terminating decimals because the digits end. A decimal like $0.\overline{87} = 0.878787 \dots$ is called a repeating decimal because the digits repeat.

EXAMPLE 1

Write $\frac{3}{8}$ as a decimal.

Divide.

$$\begin{array}{r}
 0.375 \\
 8 \overline{) 3.000} \\
 \underline{-24} \\
 60 \\
 \underline{-56} \\
 40 \\
 \underline{-40} \\
 0
 \end{array}$$

Therefore, $\frac{3}{8} = 0.375$.

Name: _____ Date _____ Score _____

PRACTICE

1.12 Writing Fractions as Decimals

Write each fraction or mixed number as a decimal.

1. $\frac{9}{10}$

2. $\frac{1}{2}$

3. $\frac{4}{9}$

4. $\frac{8}{11}$

5. $5\frac{1}{3}$

6. $2\frac{11}{18}$

7. $1\frac{5}{9}$

8. $\frac{21}{100}$

9. $\frac{1}{6}$

10. $3\frac{7}{8}$

11. $4\frac{2}{3}$

12. $12\frac{3}{8}$

13. $3\frac{11}{16}$

14. $10\frac{1}{8}$

15. $\frac{3}{4}$

16. $\frac{5}{6}$

17. $9\frac{2}{5}$

18. $6\frac{5}{8}$

19. $10\frac{17}{20}$

20. $6\frac{4}{5}$

21. $2\frac{13}{18}$

Name: _____ Date _____ Score _____

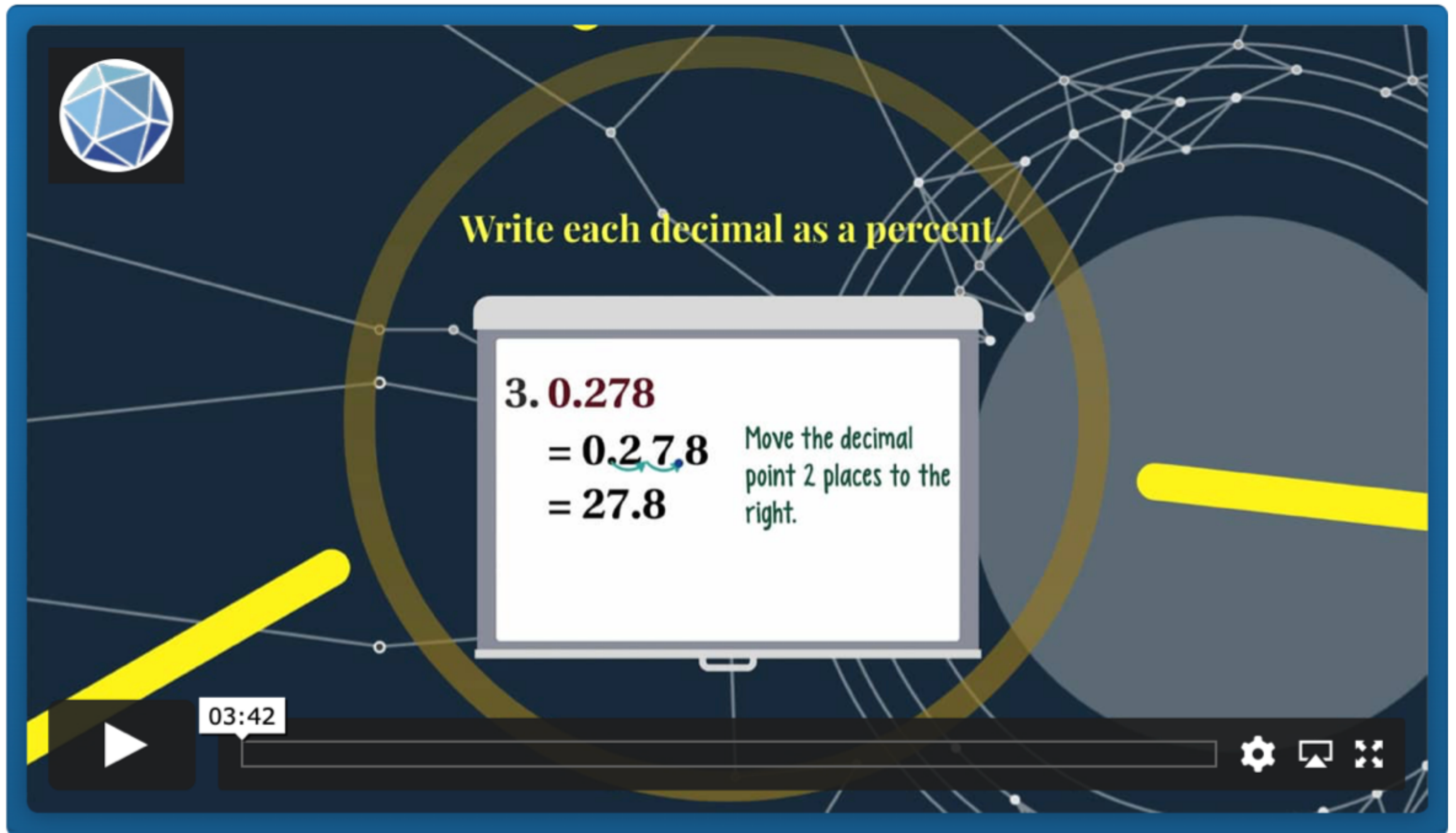
PRACTICE

1.12 Writing Fractions as Decimals

Answers

- | | |
|----------------------|------------------|
| 1. 0.9 | 12. 12.375 |
| 2. 0.5 | 13. 3.6875 |
| 3. $0.\bar{4}$ | 14. 10.125 |
| 4. $0.\overline{72}$ | 15. 0.75 |
| 5. $5.\bar{3}$ | 16. $0.8\bar{3}$ |
| 6. $2.6\bar{1}$ | 17. 9.4 |
| 7. $1.\bar{5}$ | 18. 6.625 |
| 8. 0.21 | 19. 10.85 |
| 9. $0.1\bar{6}$ | 20. 6.8 |
| 10. 3.875 | 21. $2.7\bar{2}$ |
| 11. $4.\bar{6}$ | |

LESSON 1.13 PERCENTS AND DECIMALS



The video player shows a lesson on converting decimals to percents. The background is dark blue with a network of white lines and dots. A large yellow highlighter is visible on the right side of the screen. The main content is displayed on a whiteboard-like interface.

Write each decimal as a percent.

$3.0.278$
 $= 0.278$
 $= 27.8$

Move the decimal point 2 places to the right.

03:42

- How to express percents as decimals and vice versa.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.13 Percent and Decimals

To write a percent as a decimal, first rewrite the percent as a fraction with a denominator of 100. Then write the fraction as a decimal.

EXAMPLE 1

Write 23% as a decimal.

$$23\% = \frac{23}{100}$$

Rewrite the percent as a fraction with a denominator of 100.

$$= 0.23$$

Write the fraction as a decimal.

EXAMPLE 2

Write 127% as a decimal.

$$127\% = \frac{127}{100}$$

Rewrite the percent as a fraction with a denominator of 100.

$$= 1.27$$

Write the fraction as a decimal.

EXAMPLE 3

Write 0.8% as a decimal.

$$0.8\% = \frac{0.8}{100}$$

Rewrite the percent as a fraction with a denominator of 100.

$$0.8\% = \frac{0.8}{100} \times \frac{10}{10}$$

Multiply by $\frac{10}{10}$ to eliminate the decimal in the numerator.

$$= 0.008$$

Write the fraction as a decimal.

To write a decimal as a percent, first write the decimal as a fraction with a denominator of 100. Then write the fraction as a percent.

Name: _____ Date _____ Score _____

PRACTICE

1.13 Percent and Decimals

Write each percent as a decimal.

1. 5%

2. 37%

3. 29%

4. 48%

5. 0.1%

6. 0.2%

7. 123%

8. 135%

9. 8%

10. 12%

11. 54%

12. 79%

13. 0.6%

14. 0.5%

15. 102%

16. 310%

Write each decimal as a percent.

17. 0.3

18. 0.19

19. 0.7

20. 0.74

Name: _____ Date _____ Score _____

PRACTICE

1.13 Percent and Decimals

Answers

- | | |
|----------|-----------|
| 1. 0.05 | 11. 0.54 |
| 2. 0.37 | 12. 0.79 |
| 3. 0.29 | 13. 0.006 |
| 4. 0.48 | 14. 0.005 |
| 5. 0.001 | 15. 1.02 |
| 6. 0.002 | 16. 3.1 |
| 7. 1.23 | 17. 30% |
| 8. 1.35 | 18. 19% |
| 9. 0.08 | 19. 70% |
| 10. 0.12 | 20. 74% |

|

LESSON 1.14 COMPARING AND ORDERING FRACTIONS



- How to compare and order fractions.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.14 Comparing and Ordering Fractions

To compare two fractions,

- Find the least common denominator (LCD) of the fractions; that is, find the least common multiple of the denominators.
- Rewrite each fraction as an equivalent fraction whose denominator is the LCD.
- Compare the numerators.

EXAMPLE 1

Replace ■ with $<$, $>$, or $=$ to make $\frac{1}{3}$ ■ $\frac{5}{12}$.

- The LCM of 3 and 12 is 12. So, the LCD is 12.
- Rewrite each fraction with a denominator of 12.

$$\frac{1}{3} = \frac{4}{12}, \text{ so } \frac{1}{3} = \frac{4}{12} \quad \frac{5}{12} = \frac{5}{12}$$

$\begin{array}{c} \uparrow \times 4 \\ \frac{1}{3} = \frac{4}{12} \\ \downarrow \times 4 \end{array}$

- Now, compare. Since $4 < 5$, $\frac{4}{12} < \frac{5}{12}$. So, $\frac{1}{3} < \frac{5}{12}$.

Name: _____ Date _____ Score _____

PRACTICE

1.14 Comparing and Ordering Fractions

Replace each ■ with $>$, $<$, or $=$ to make a true sentence.

1. $\frac{2}{3}$ ■ $\frac{3}{4}$

2. $\frac{1}{2}$ ■ $\frac{6}{7}$

3. $\frac{5}{6}$ ■ $\frac{7}{8}$

4. $\frac{6}{7}$ ■ $\frac{4}{5}$

5. $\frac{5}{7}$ ■ $\frac{7}{10}$

6. $\frac{3}{10}$ ■ $\frac{5}{14}$

7. $\frac{1}{6}$ ■ $\frac{2}{12}$

8. $\frac{3}{8}$ ■ $\frac{6}{16}$

9. $\frac{3}{9}$ ■ $\frac{1}{3}$

10. $\frac{5}{8}$ ■ $\frac{5}{12}$

11. $\frac{5}{12}$ ■ $\frac{3}{16}$

12. $\frac{2}{15}$ ■ $\frac{1}{6}$

13. $\frac{4}{9}$ ■ $\frac{3}{7}$

14. $\frac{7}{9}$ ■ $\frac{4}{7}$

15. $\frac{5}{8}$ ■ $\frac{7}{12}$

16. $\frac{1}{6}$ ■ $\frac{9}{10}$

17. $\frac{4}{5}$ ■ $\frac{2}{3}$

18. $\frac{3}{4}$ ■ $\frac{2}{9}$

19. $\frac{5}{12}$ ■ $\frac{2}{5}$

20. $\frac{3}{5}$ ■ $\frac{5}{9}$

21. $\frac{9}{10}$ ■ $\frac{11}{12}$

Name: _____ Date _____ Score _____

PRACTICE

1.14 Comparing and Ordering Fractions

Answers

1. $<$

12. $<$

2. $<$

13. $>$

3. $<$

14. $>$

4. $>$

15. $>$

5. $>$

16. $<$

6. $<$

17. $>$

7. $=$

18. $>$

8. $=$

19. $>$

9. $=$

20. $>$

10. $>$

21. $<$

11. $>$

LESSON 1.15 FRACTIONS, DECIMALS, AND PERCENTS

CONVERTING FRACTIONS TO PERCENT

Convert the fraction to percent.

1) $\frac{2}{5}$ 5 is a factor of 100

BOTH methods are applicable.

Multiplication Method

$5 \times 20 = 100$

Multiply both the numerator and denominator by 20.

$$\frac{2}{5} \times \frac{20}{20} = \frac{40}{100}$$

Use the numerator 40 $\frac{40}{100} = 40\%$

and add the % sign.

Multiplication Method - if the denominator is a factor of 100.

Multiply the numerator and denominator by a number that will make the denominator 100.

Use the numerator and add the % sign.

Proportion Method - applicable to any kind of fraction.

$$\frac{a}{b} = \frac{n}{100} \rightarrow \text{solve for } n$$

given fraction Add the % sign to n. $n\%$

Proportion Method

Set up the proportion.

$$\frac{2}{5} = \frac{n}{100}$$

Cross multiply $200 = 5n$

Solve for n.

Divide both sides by 5.

$$5n = 200$$

$$n = 40$$

Add the % sign to n.

- How to write fractions as decimals and percents.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.15 Fractions, Decimals, and Percent

- To write a percent as a decimal, divide by 100 and remove the percent symbol.
- To write a decimal as a percent, multiply 100 and add the percent symbol.
- To express a fraction as a percent, you can use a proportion. Alternatively, you can write the fraction as a decimal, and then express the decimal as a percent.

EXAMPLE 1

Write 56% as a decimal.

$56\% = 56\%$ Divide by 100 and remove the percent symbol.

$$= 0.56$$

EXAMPLE 2

Write 0.17 as a percent.

$0.17 = 0.17$ Multiply by 100 and add the percent symbol.

$$= 17\%$$

EXAMPLE 3

Write $\frac{7}{20}$ as a percent.

Method 1: Use a proportion

$$\frac{7}{20} = \frac{x}{100}$$

Write the proportion.

$$7 \cdot 100 = 20 \cdot x$$

Find cross products.

$$700 = 20x$$

Multiply.

$$\frac{700}{20} = \frac{20x}{20}$$

Divide each side by 20.

$$35 = x$$

Simplify.

So, $\frac{7}{20}$ can be written as 35%.

Method 2: Write as a decimal.

$$\frac{7}{20} = 0.35$$

Convert to a decimal by dividing.

$$= 35\%$$

Multiply by 100 and add the percent symbol.

Name: _____ Date _____ Score _____

PRACTICE

1.15 Fractions, Decimals, and Percent

Write each percent as a decimal.

1. 50%

2. 41%

3. 17.5%

4. 13%

5. 79%

6. 33.4%

7. 26%

8. 9.1%

9. 91.5%

Write each decimal as a percent.

10. 0.6

11. 0.38

12. 0.572

13. 0.05

14. 0.81

15. 0.737

16. 0.17

17. 0.453

18. 0.061

Write each fraction as a percent.

19. $\frac{9}{20}$

20. $\frac{33}{40}$

21. $\frac{2}{25}$

22. $\frac{3}{80}$

23. $\frac{5}{16}$

24. $\frac{13}{16}$

Name: _____ Date _____ Score _____

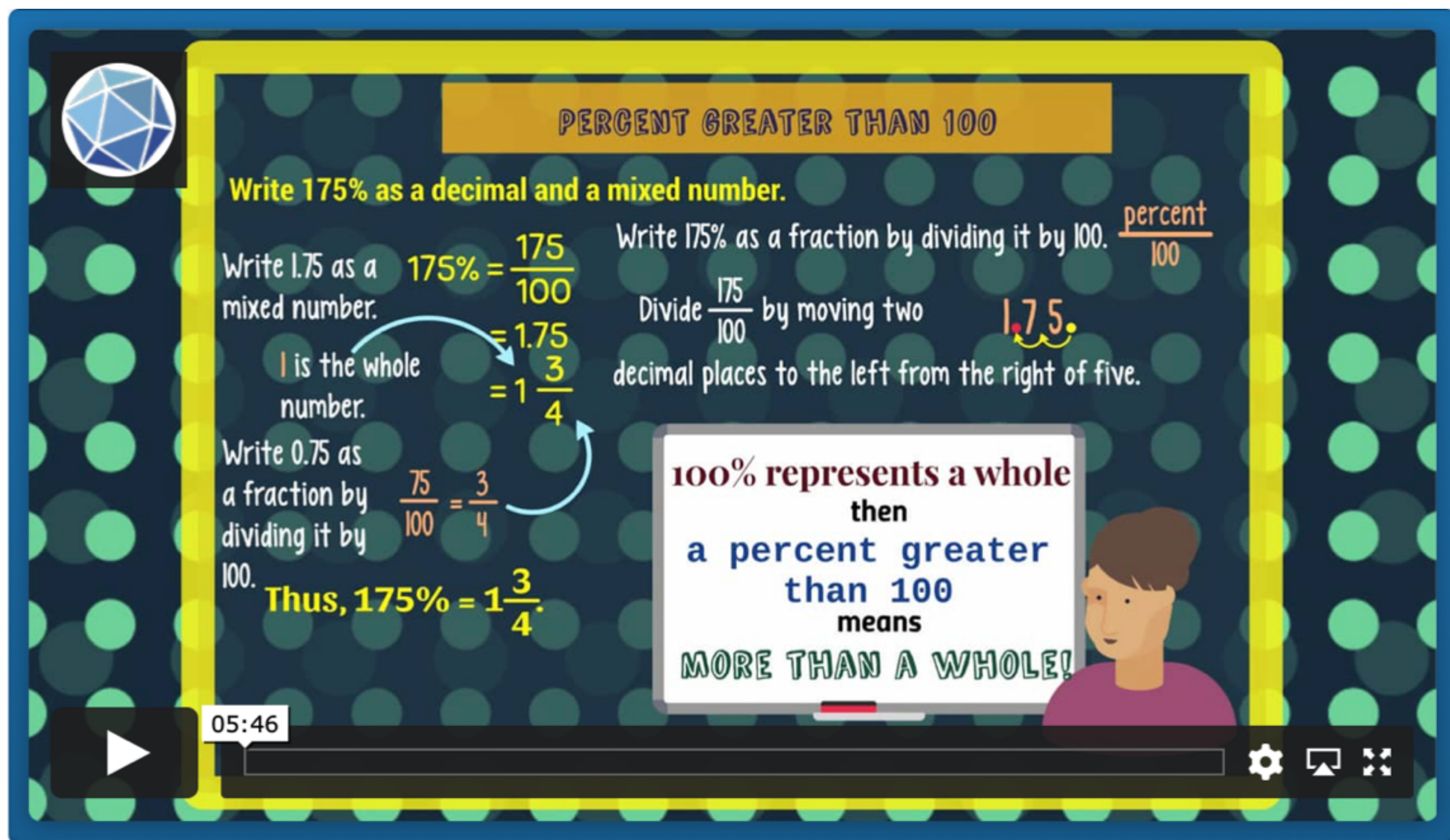
PRACTICE

1.15 Fractions, Decimals, and Percent

Answers

- | | |
|-----------|------------|
| 1. 0.5 | 13. 5% |
| 2. 0.41 | 14. 81% |
| 3. 0.175 | 15. 73.7% |
| 4. 0.13 | 16. 17% |
| 5. 0.79 | 17. 45.3% |
| 6. 0.334 | 18. 6.1% |
| 7. 0.26 | 19. 45% |
| 8. 0.091 | 20. 82.5% |
| 9. 0.915 | 21. 8% |
| 10. 60% | 22. 3.75% |
| 11. 38% | 23. 31.25% |
| 12. 57.2% | 24. 81.25% |

LESSON 1.16 PERCENT GREATER THAN 100 AND LESS THAN 1



PERCENT GREATER THAN 100

Write 175% as a decimal and a mixed number.

Write 1.75 as a mixed number. $175\% = \frac{175}{100} = 1.75 = 1\frac{3}{4}$

1 is the whole number.

Write 0.75 as a fraction by dividing it by 100. $\frac{75}{100} = \frac{3}{4}$

Thus, $175\% = 1\frac{3}{4}$.

Write 175% as a fraction by dividing it by 100. $\frac{\text{percent}}{100}$

Divide $\frac{175}{100}$ by moving two decimal places to the left from the right of five. 1.75

100% represents a whole then a percent greater than 100 means MORE THAN A WHOLE!

05:46

- How to write percents greater than 100% and percents less than 1% as fractions and as decimals, and vice versa.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.16 Percent Greater Than 100% and Less Than 1 %

A percent greater than 100% equals a number greater than 1. A percent less than 1% equals a number less than 0.01 or $\frac{1}{100}$.

EXAMPLE 1

Write each percent as a decimal and as a mixed number or fraction in simplest form.

a. 280%

$$280\% = \frac{280}{100} \quad \text{Definition of percent}$$

$$= 2.8 \text{ or } 2\frac{4}{5}$$

b. 0.12%

$$0.12\% = \frac{0.12}{100} \quad \text{Definition of percent}$$

$$= 0.0012 \text{ or } \frac{3}{2,500}$$

EXAMPLE 2

Write each decimal as a percent.

c. 2.17

$$2.17 = \quad \text{Multiply by 100.}$$

$$217\%$$

$$= 217\%$$

d. 0.0034

$$0.0034 = \quad \text{Multiply by 100.}$$

$$0.34$$

$$= 34\%$$

Name: _____ Date _____ Score _____

PRACTICE

1.16 Percent Greater Than 100% and Less Than 1 %

Write each percent as a decimal and as a mixed number or fraction in simplest form.

1. 900%

2. 245%

3. 0.08%

4. 150%

5. 120%

6. 0.12%

7. 675%

8. 0.2%

9. 0.35%

Write each decimal as a percent.

10. 3.9

11. 6.75

12. 0.0046

13. 81

14. 2.81

15. 0.0069

16. 25

17. 0.001

18. 0.0083

Write each number as a percent.

19. $2\frac{1}{2}$

20. $5\frac{1}{4}$

21. $6\frac{1}{2}$

Name: _____ Date _____ Score _____

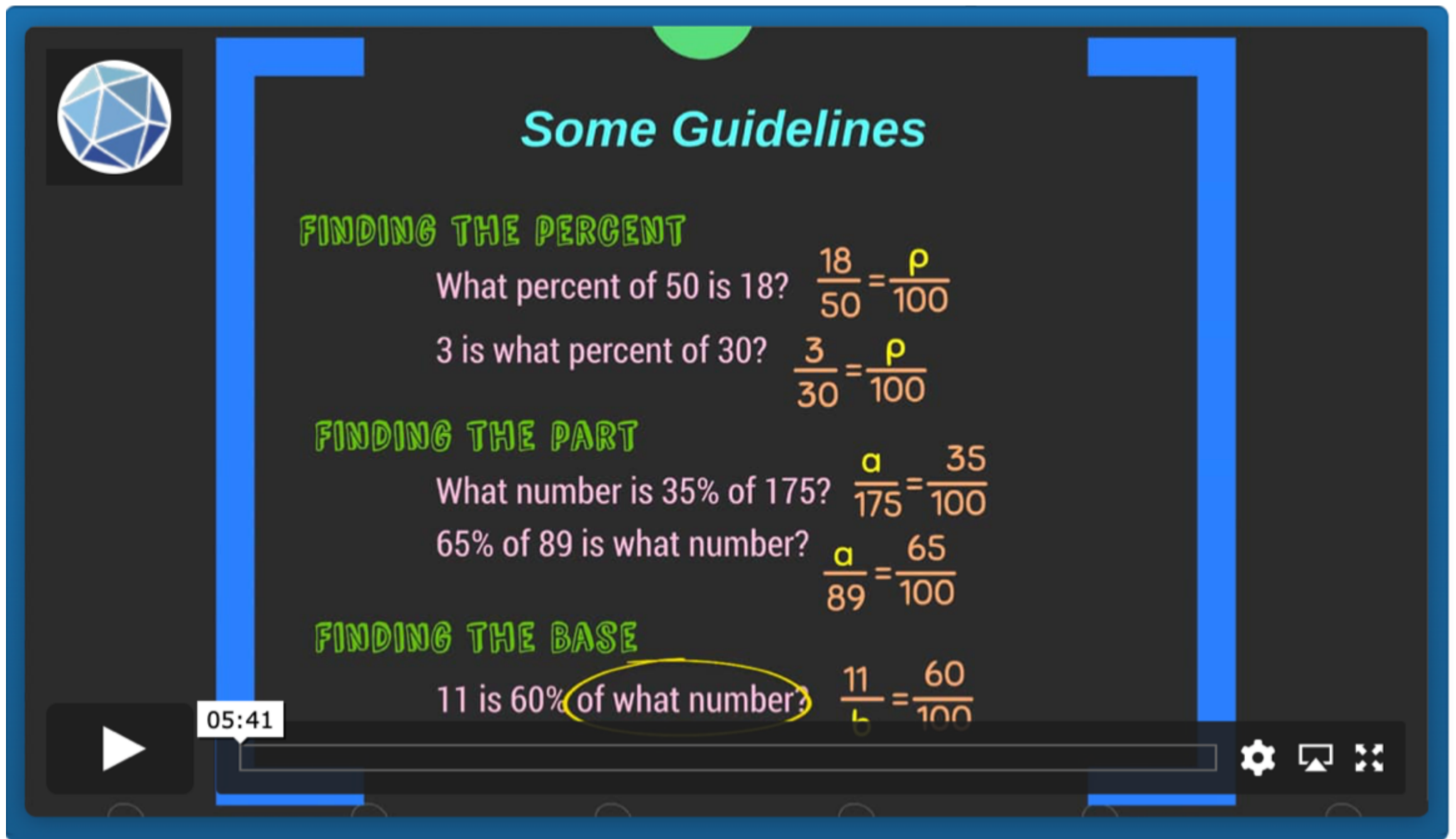
PRACTICE

1.16 Percent Greater Than 100% and Less Than 1 %

Answers

- | | |
|------------------------------|------------|
| 1. 9 | 10. 390% |
| 2. 2.45; $2\frac{9}{20}$ | 11. 675% |
| 3. 0.0008; $\frac{1}{1,250}$ | 12. 0.46% |
| 4. 1.5; $1\frac{1}{2}$ | 13. 8,100% |
| 5. 1.2; $1\frac{1}{5}$ | 14. 281% |
| 6. 0.0012; $\frac{3}{2,500}$ | 15. 0.69% |
| 7. 6.75; $6\frac{3}{4}$ | 16. 2,500% |
| 8. 0.002; $\frac{1}{500}$ | 17. 0.1% |
| 9. 0.0035; $\frac{7}{2,000}$ | 18. 0.83% |
| | 19. 250% |
| | 20. 525% |
| | 21. 650% |

LESSON 1.17 THE PERCENT PROPORTION



The video player shows a lesson titled "Some Guidelines" with three sections: "FINDING THE PERCENT", "FINDING THE PART", and "FINDING THE BASE". Each section includes a word problem and a corresponding percent proportion equation. The word "of" in the third problem is circled in yellow. The video player interface includes a play button, a progress bar at 05:41, and settings icons.

Some Guidelines

FINDING THE PERCENT

What percent of 50 is 18? $\frac{18}{50} = \frac{p}{100}$

3 is what percent of 30? $\frac{3}{30} = \frac{p}{100}$

FINDING THE PART

What number is 35% of 175? $\frac{a}{175} = \frac{35}{100}$

65% of 89 is what number? $\frac{a}{89} = \frac{65}{100}$

FINDING THE BASE

11 is 60% of what number? $\frac{11}{b} = \frac{60}{100}$

- How to solve problems using the percent proportion.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.17 The Percent Proportion

A percent proportion compares part of a quantity to the whole quantity, called the base, using a percent. In symbols, the percent proportion can be written as $\frac{a}{b} = \frac{p}{100}$, where a is the part, b is the base, and p is the percent.

EXAMPLE 1

What percent of 24 is 18?

18 is the part, and 24 is the base. You need to find the percent p .

$$\frac{a}{b} = \frac{p}{100}$$

Percent proportion

$$1,800 = 24p$$

Simplify.

$$\frac{18}{24} = \frac{p}{100}$$

Replace a with 18 and b with 24.

$$\frac{1,800}{24} = \frac{24p}{24}$$

Divide each side by 24.

$$18 \cdot 100 = 24 \cdot p$$

Find the cross products.

$$75 = p$$

Simplify.

So, 75% of 24 is 18.

EXAMPLE 2

What number is 60% of 150?

60 is the percent, and 150 is the base. You need to find the part.

$$\frac{a}{b} = \frac{p}{100}$$

Percent proportion

$$100a = 9000$$

Simplify.

$$\frac{a}{150} = \frac{60}{100}$$

Replace b with 150 and p with 60.

$$\frac{100a}{100} = \frac{9,000}{100}$$

Divide each side by 100.

$$a \cdot 100 = 150 \cdot 60$$

Find the cross products.

$$a = 90$$

Simplify.

So, 60% of 150 is 90.

Name: _____ Date _____ Score _____

PRACTICE

1.17 The Percent Proportion

Write each percent as a decimal and as a mixed number or fraction in simplest form.

1. 50 is 20% of what number?
2. What number is 70% of 250?
3. What number is 45% of 180?
4. What percent of 90 is 36?
5. What number is 32% of 1,000?
6. 73 is 20% of what number?
7. What percent of 185 is 35?
8. 85% of 190 is what number?
9. What percent of 128 is 24?
10. What is 82% of 230?
11. What percent of 20 is 4?
12. 10 is 5% of what number?
13. 40% of what number is 82?
14. 60 is 25% of what number?
15. What percent of 125 is 5?
16. 57% of 109 is what number?
17. 25 is what percent of 365?
18. 12.5 is 25% of what number?
19. 5.25% of 170 is what number?
20. What percent of 49 is 7?

Name: _____ Date _____ Score _____

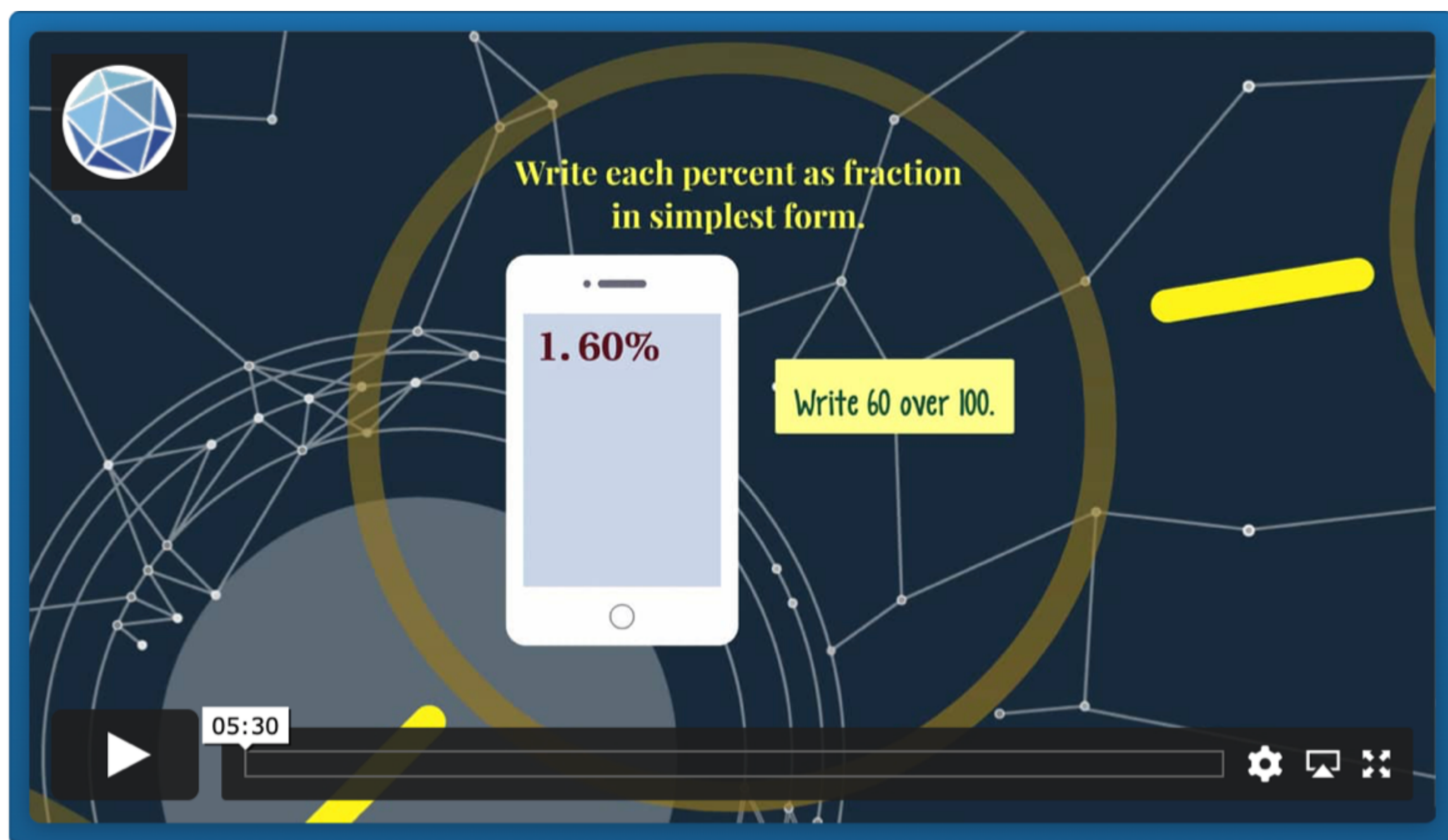
PRACTICE

1.17 The Percent Proportion

Answers

- | | |
|-----------|-----------|
| 1. 250 | 11. 20% |
| 2. 175 | 12. 200 |
| 3. 81 | 13. 205 |
| 4. 40% | 14. 240 |
| 5. 320 | 15. 4% |
| 6. 365 | 16. 62.1 |
| 7. 18.9% | 17. 6.8% |
| 8. 161.5 | 18. 50 |
| 9. 18.8% | 19. 8.9 |
| 10. 188.6 | 20. 14.3% |

LESSON 1.18 PERCENT AND FRACTIONS



- How to express percents as fractions and vice versa.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.18 Percent and Fractions

To write a percent as a fraction, write it as a fraction with a denominator of 100. Then simplify.

EXAMPLE 1

Write 15% as a fraction in simplest form.

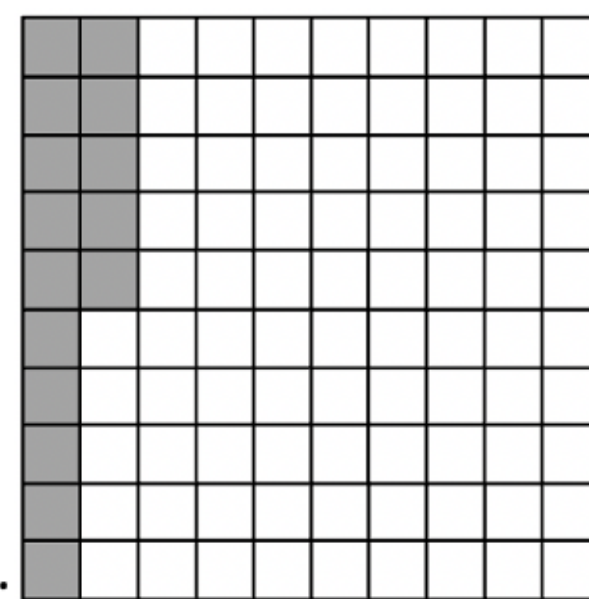
15% means 15 out of 100.

$$15\% = \frac{15}{100}$$

Write the percent as a fraction with a denominator of 100.

$$= \frac{15^3}{100^3} \text{ or } \frac{3}{20}$$

Simplify. Divide the numerator and denominator by the GCF, 5.



EXAMPLE 2

Write 180% as a fraction in simplest form.

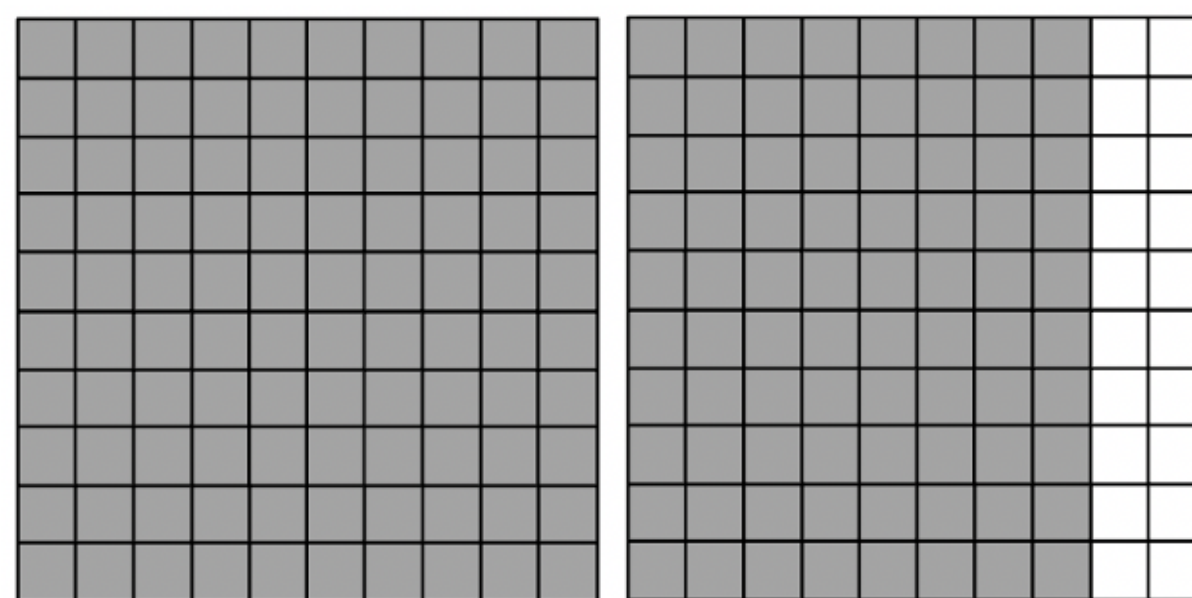
180% means 180 out of 100.

$$180\% = \frac{180}{100}$$

Write the percent as a fraction with a denominator of 100.

$$= \frac{180^4}{100^4} \text{ or } 1\frac{4}{5}$$

Simplify.



You can also write fractions as percents. To write a fraction as percent, write a proportion and solve.

Name: _____ Date _____ Score _____

PRACTICE

1.18 Percent and Fractions

Model each percent.

1. 40%

2. 75%

3. 24%

4. 92%

5. 18%

6. 30%

7. 140%

8. 68%

9. 110%

10. 74%

11. 55%

12. 175%

13. 44%

14. 155%

15. 43%

Write each fraction as a percent.

16. $\frac{4}{5}$

17. $\frac{3}{5}$

18. $\frac{3}{20}$

19. $\frac{3}{2}$

20. $\frac{7}{10}$

21. $\frac{5}{4}$

Name: _____ Date _____ Score _____

PRACTICE

1.18 Percent and Fractions

Answers

1. $\frac{2}{5}$

2. $\frac{3}{4}$

3. $\frac{6}{25}$

4. $\frac{23}{25}$

5. $\frac{9}{50}$

6. $\frac{3}{10}$

7. $1\frac{2}{5}$

8. $\frac{17}{25}$

9. $1\frac{1}{10}$

10. $\frac{37}{50}$

11. $\frac{11}{20}$

12. $1\frac{3}{4}$

13. $\frac{11}{25}$

14. $1\frac{11}{20}$

15. $\frac{43}{100}$

16. 80%

17. 60%

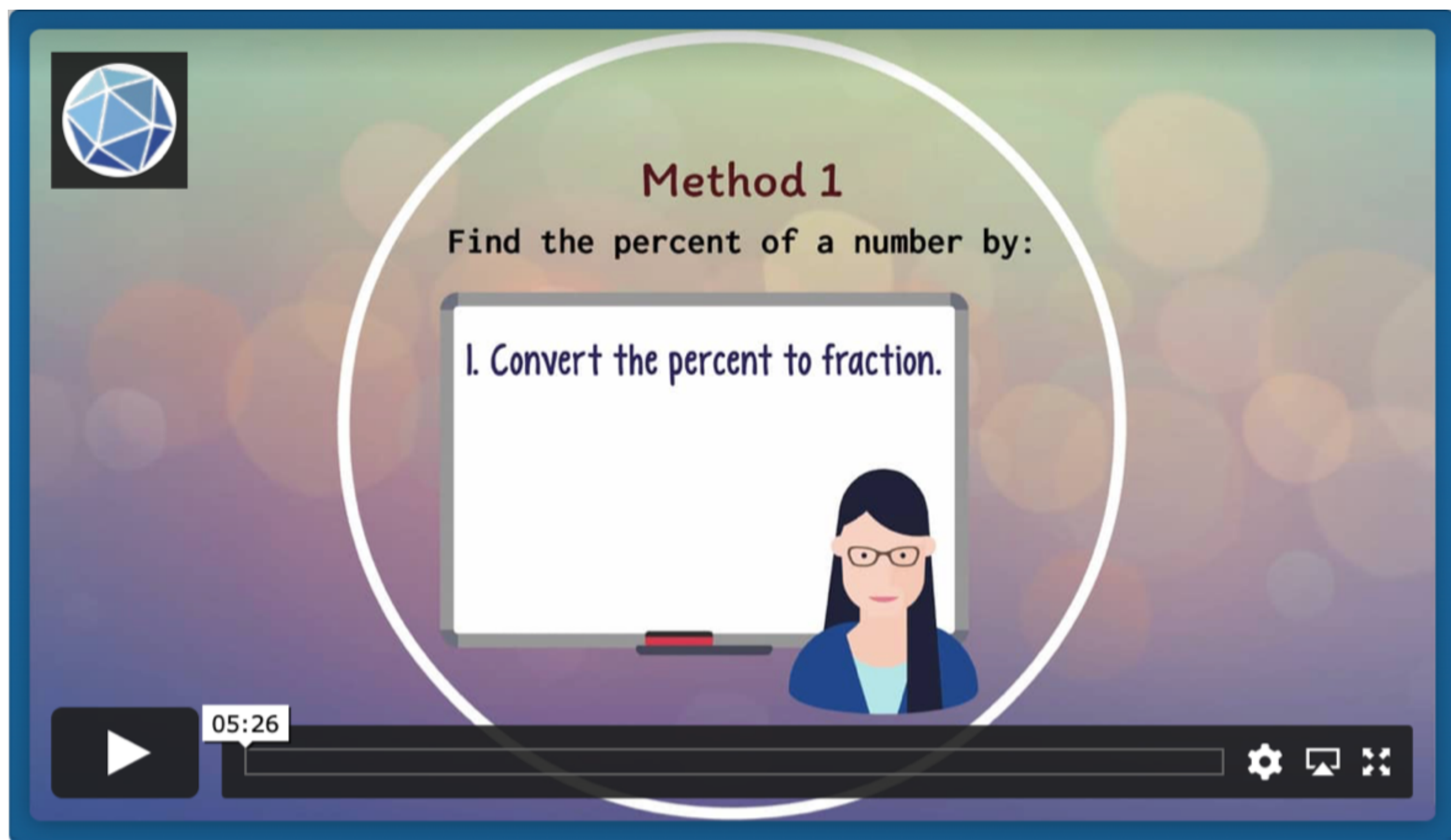
18. 15%

19. 150%

20. 70%

21. 125%

LESSON 1.19 PERCENT OF A NUMBER



- How to find the percent of a number

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.19 Percent of a Number

One way to find the percent of a number is to write the percent as a fraction and then multiply. Another way is to write the percent as a decimal and then multiply.

EXAMPLE 1

Find 70% of 40.

Method 1: Write the percent as a fraction.

$$70\% = \frac{70}{100} \text{ or } \frac{7}{10}$$

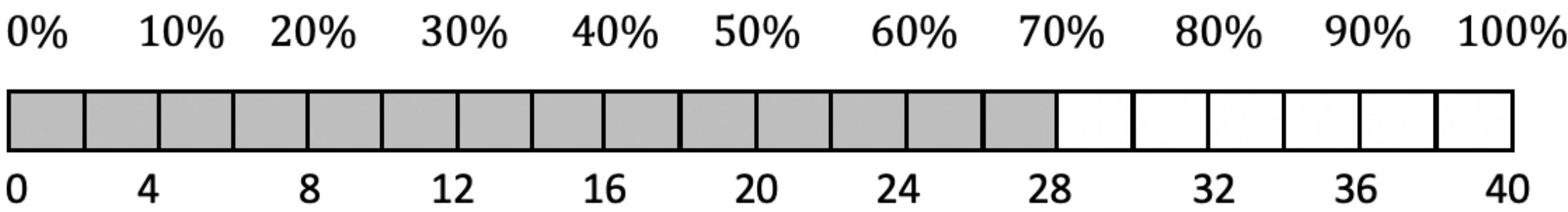
$$\frac{7}{10} \text{ of } 40 = \frac{7}{10} \times 40 \text{ or } 28$$

So, 70% of 40 is 28. Use a model to check the answer.

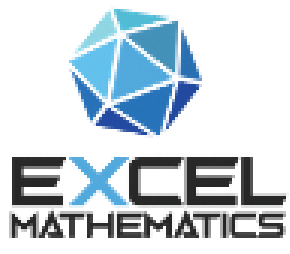
Method 2: Write the percent as a decimal.

$$70\% = \frac{70}{100} \text{ or } 0.7$$

$$0.7 \text{ of } 40 = 0.7 \times 40 \text{ or } 28$$



The model confirms that 70% of 40 is 28



Name: _____ Date _____ Score _____

PRACTICE

1.19 Percent of a Number

Find the percent of each number.

1. 25% of 16

2. 60% of 40

3. 30% of 110

4. 4% of 100

5. 125% of 40

6. 110% of 50

7. 6.5% of 40

8. 50% of 70

9. 75% of 20

10. 50% of 140

11. 75% of 36

12. 8% of 25

13. 125% of 60

14. 0.5% of 14

15. 10% of 30

16. 20% of 90

17. 25% of 80

18. 90% of 120

19. 150% of 22

20. 0.4% of 5

21. 0.1% of 29

Name: _____ Date _____ Score _____

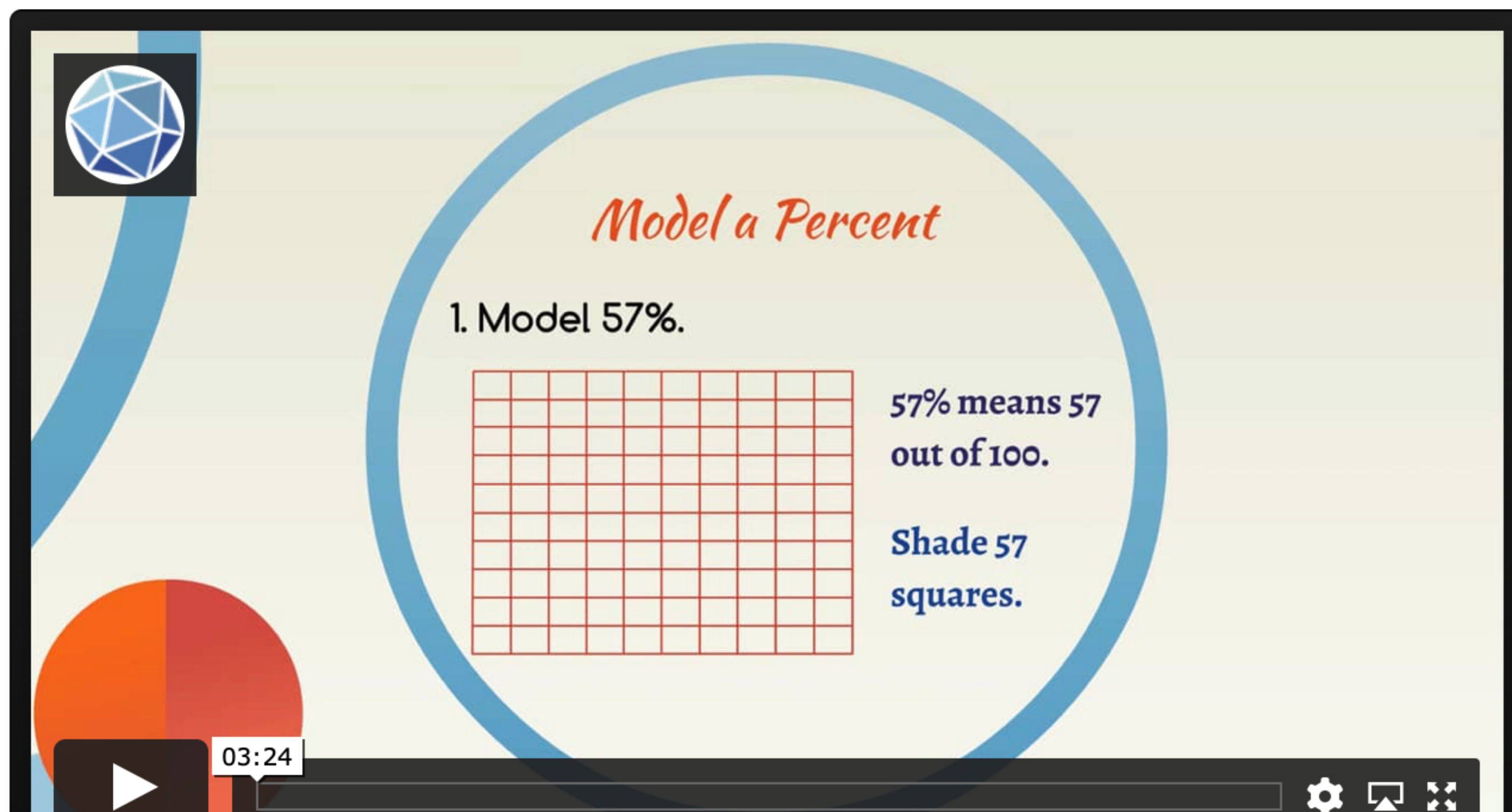
PRACTICE

1.19 Percent of a Number

Answers

- | | |
|--------|-----------|
| 1. 4 | 12. 2 |
| 2. 24 | 13. 75 |
| 3. 33 | 14. 0.07 |
| 4. 4 | 15. 3 |
| 5. 50 | 16. 18 |
| 6. 55 | 17. 20 |
| 7. 2.6 | 18. 108 |
| 8. 35 | 19. 33 |
| 9. 15 | 20. 0.02 |
| 10. 70 | 21. 0.029 |
| 11. 27 | |

LESSON 1.20 MODELING PERCENTS



The video player displays a lesson titled "Model a Percent" in a large blue circle. The instruction "1. Model 57%." is shown above a 10x10 grid of squares. To the right of the grid, the text states: "57% means 57 out of 100." and "Shade 57 squares." The video player interface includes a play button, a progress bar, a timestamp of 03:24, and icons for settings, full screen, and share.

How to solve problems using the percent proportion

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.20 Modeling Percent

I

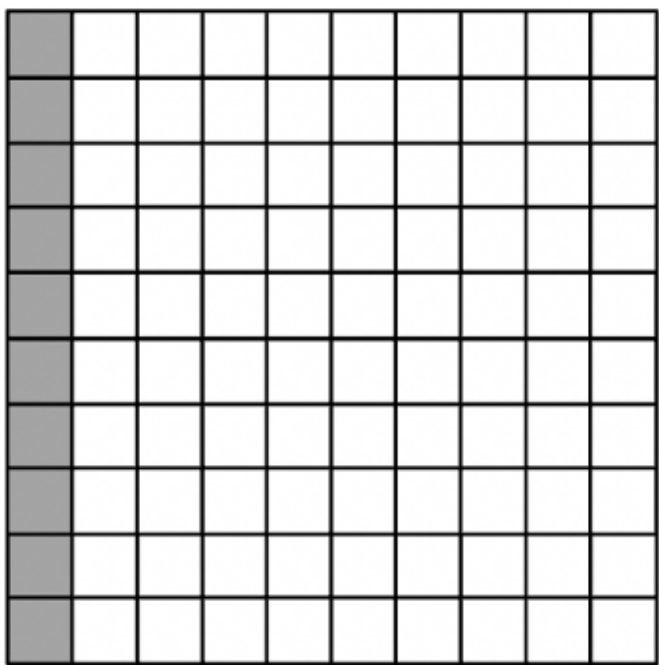
Ratios like 41 out of 100, 25 out of 100, or 2 out of 100 can be written as percents. A percent (%) is a ratio that compares a number to 100. Since the word percent means “out of one hundred”, you can use a 10 × 10 grid to model percent.

EXAMPLE 1

Model 10%.

10% means 10 out of 100.

So, shade 10 out of 100 squares.

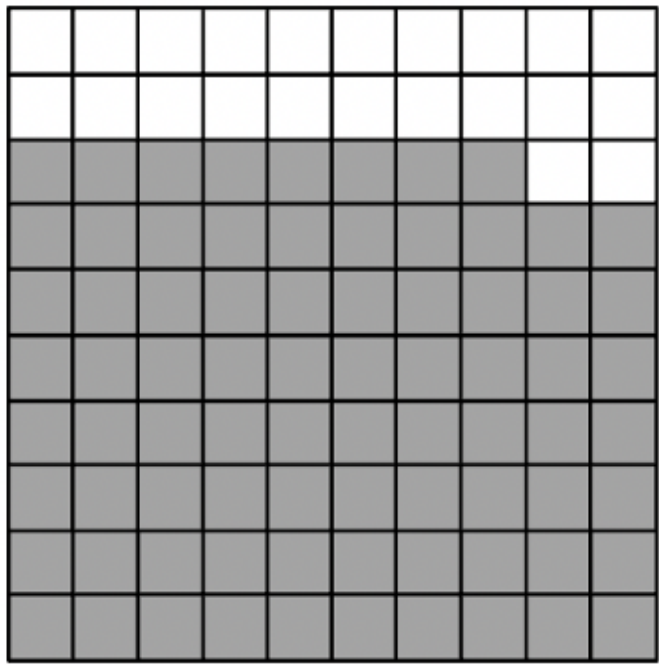


EXAMPLE 2

Model 78%.

78% means 78 out of 100.

So, shade 78 out of 100 squares.



You can use what you know about decimal models and percent to identify the percent of a model that is shaded.

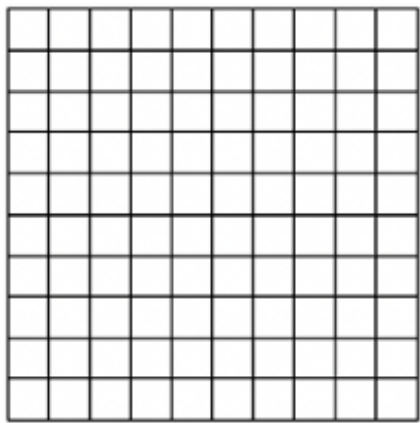
Name: _____ Date _____ Score _____

PRACTICE

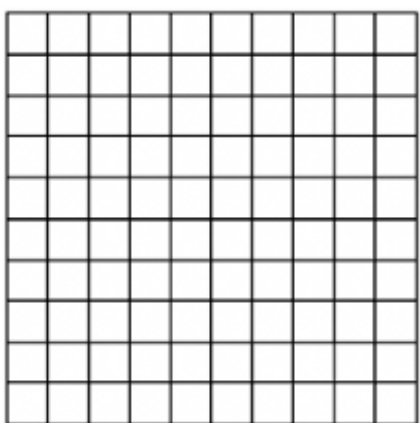
1.20 Modeling Percent

Model each percent.

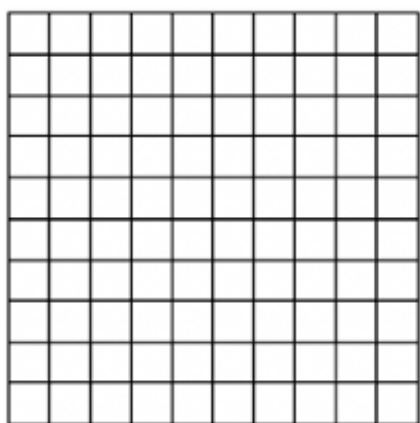
1. 15%



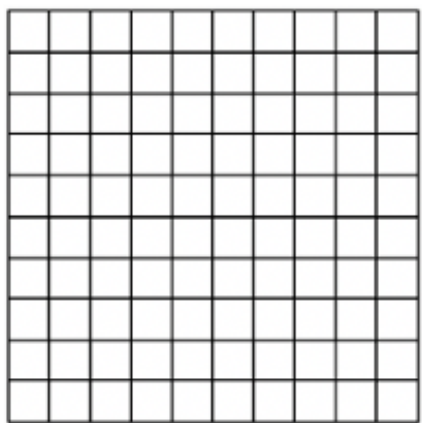
2. 80%



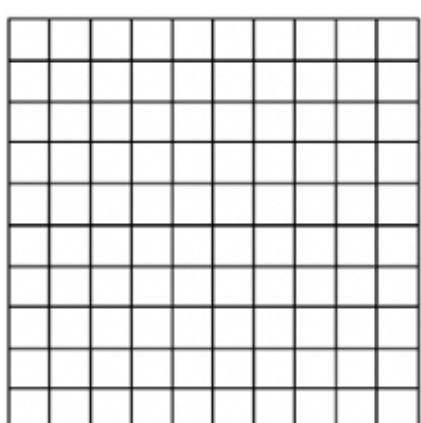
3. 50%



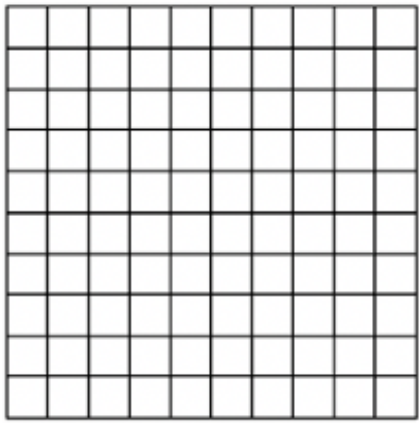
4. 21%



5. 75%

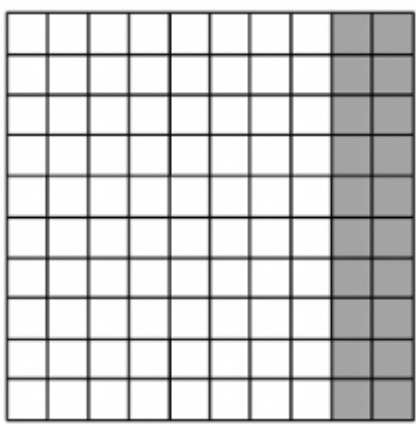


6. 48%

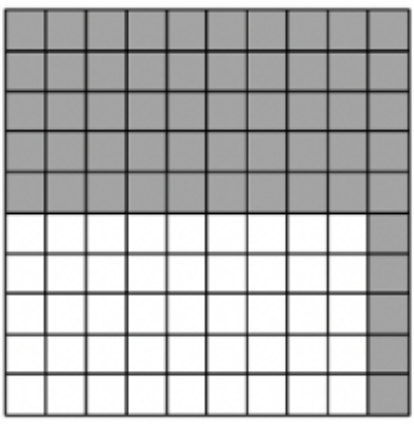


Identify each percent that is modeled.

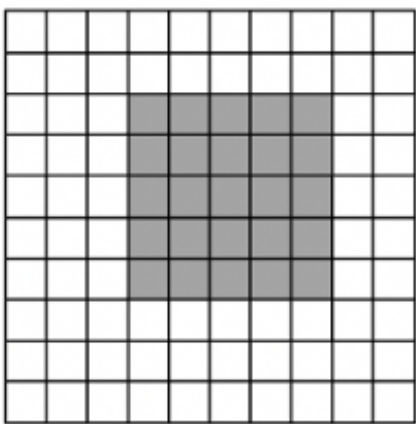
7.



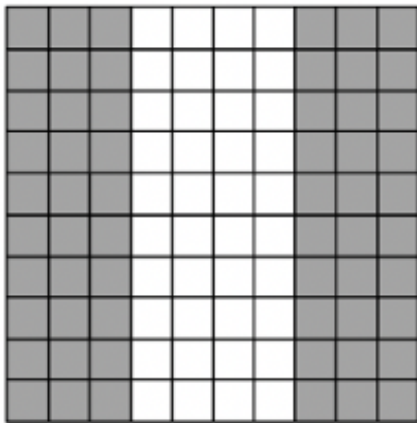
8.



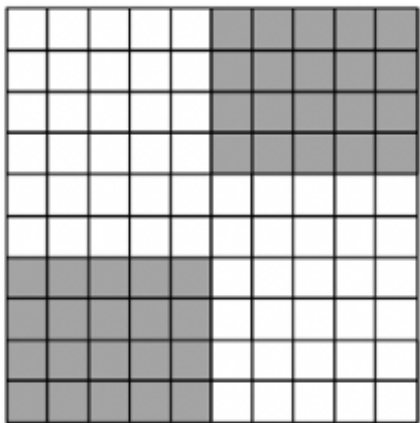
9.



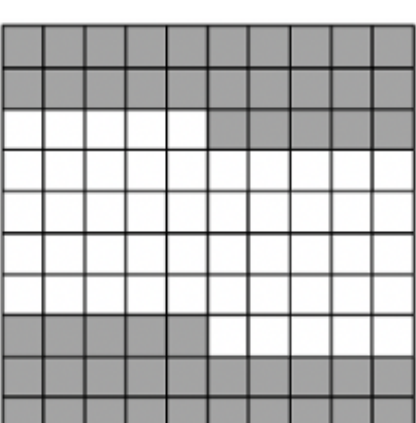
10.



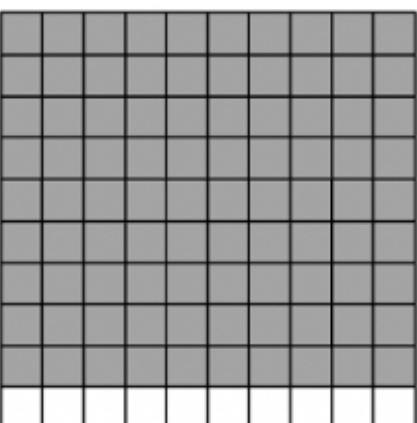
11.



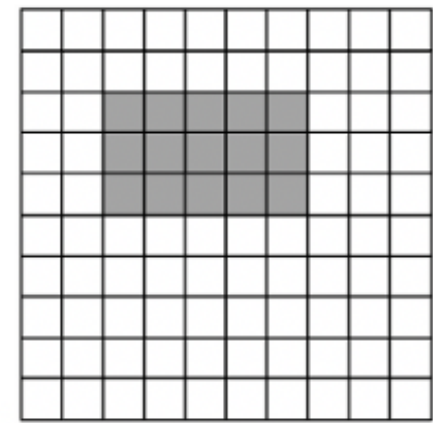
12.



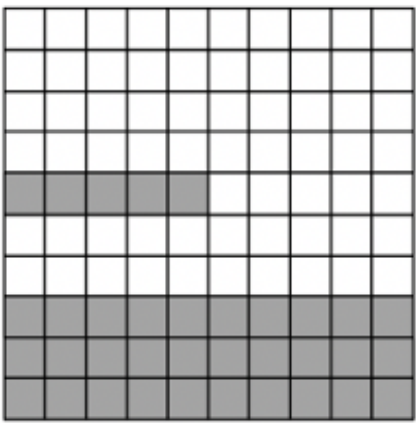
13.



14.



15.

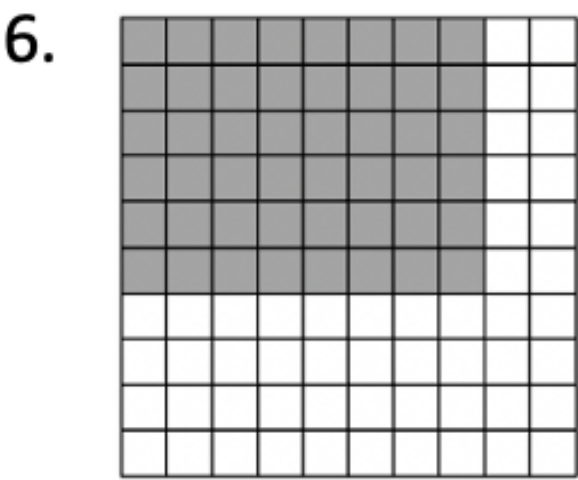
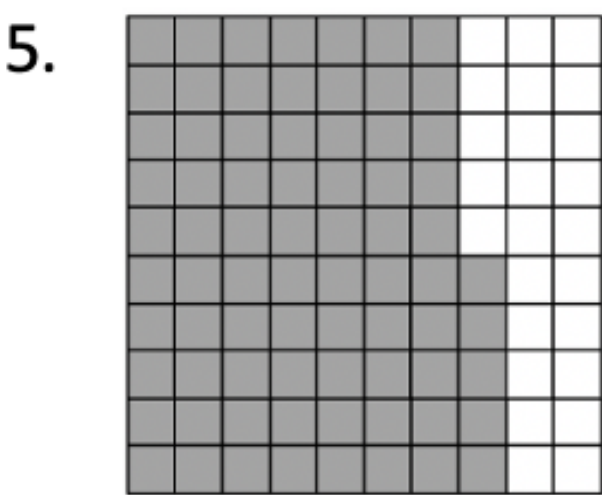
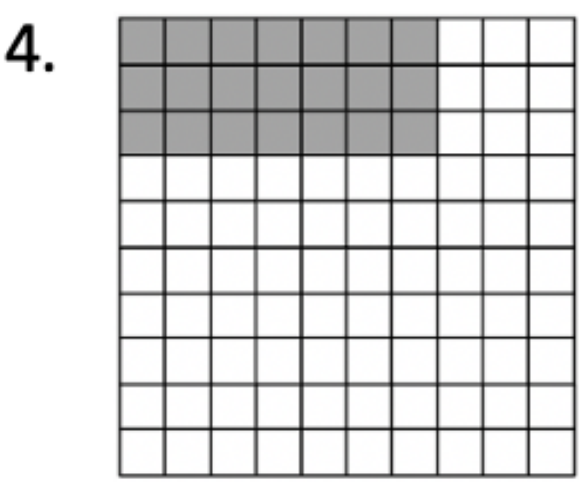
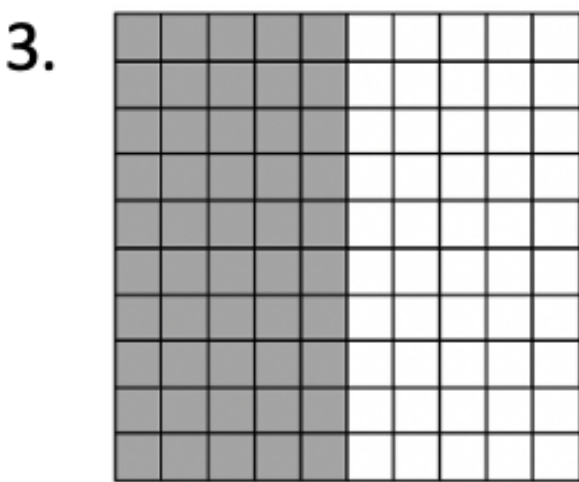
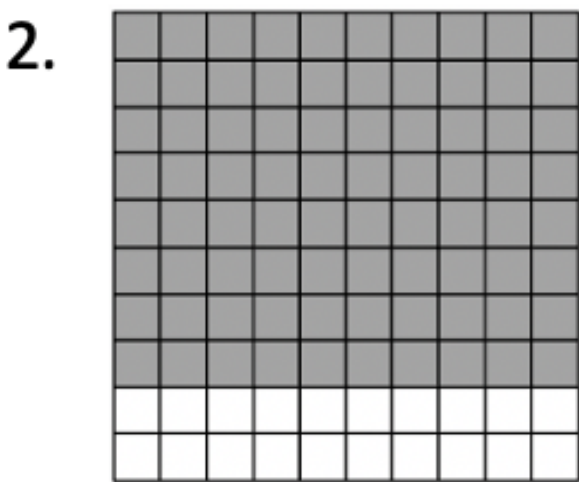
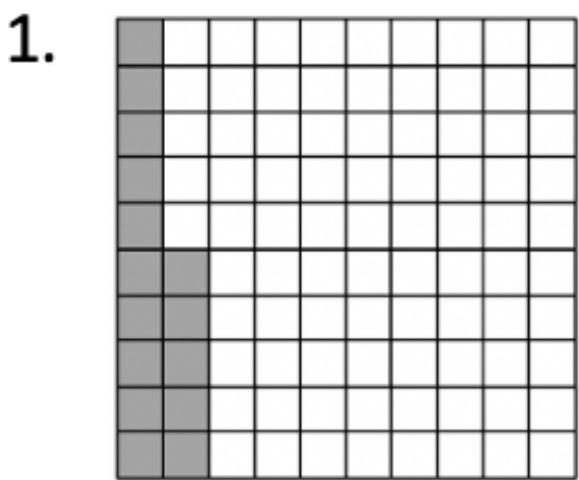


Name: _____ Date _____ Score _____

PRACTICE

1.20 Modeling Percent

Answers (1-6 Sample answers given)



7. 20%

8. 55%

9. 25%

10. 60%

11. 40%

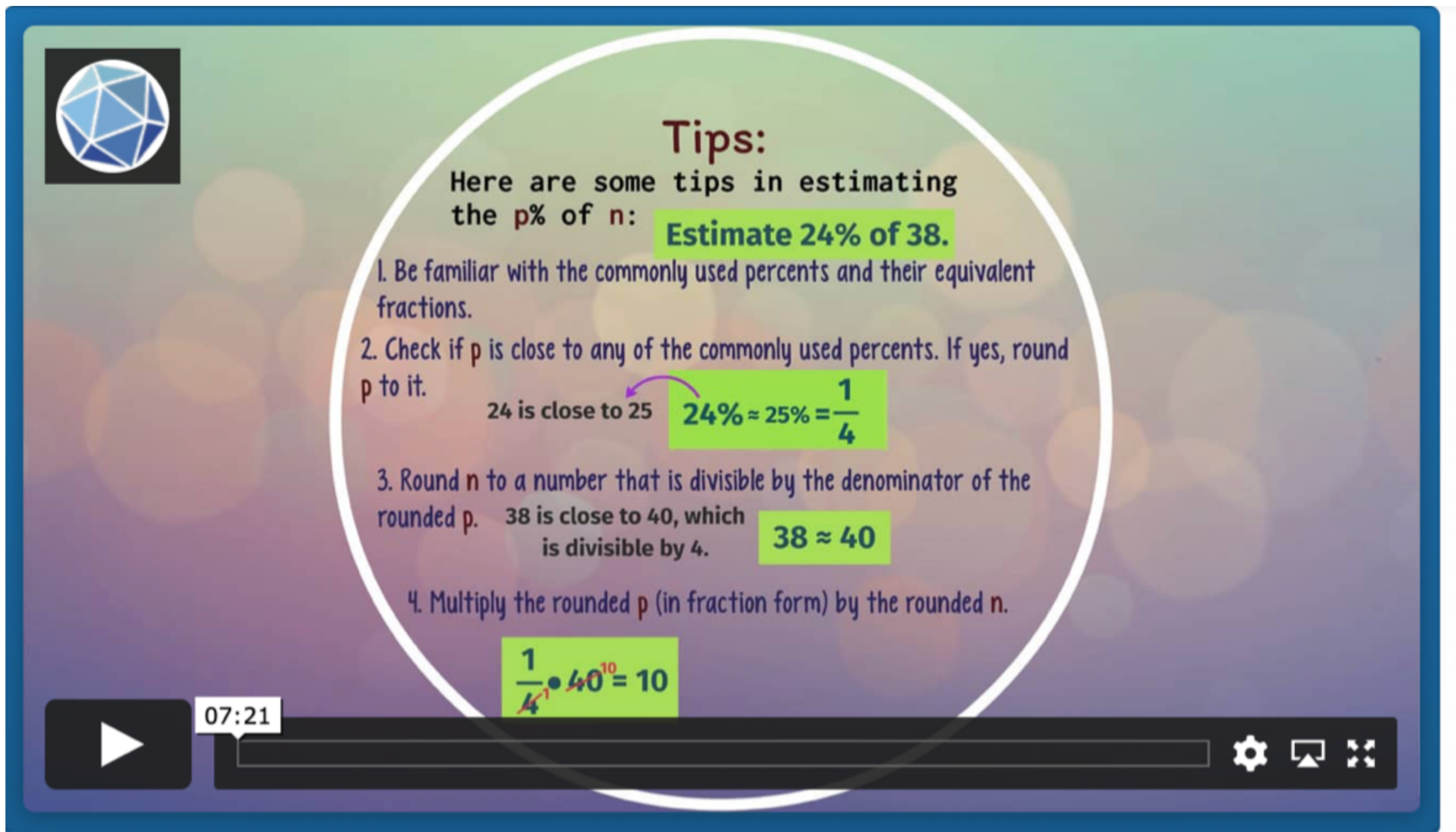
12. 50%

13. 90%

14. 15%

15. 35%

LESSON 1.21 ESTIMATING WITH PERCENTS



The video player shows a lesson titled "LESSON 1.21 ESTIMATING WITH PERCENTS". The video content includes a "Tips:" section with the following text: "Here are some tips in estimating the p% of n: Estimate 24% of 38." The tips are listed as follows:

1. Be familiar with the commonly used percents and their equivalent fractions.
2. Check if p is close to any of the commonly used percents. If yes, round p to it.
24 is close to 25 $\rightarrow 24\% \approx 25\% = \frac{1}{4}$
3. Round n to a number that is divisible by the denominator of the rounded p . 38 is close to 40, which is divisible by 4. $38 \approx 40$
4. Multiply the rounded p (in fraction form) by the rounded n .
 $\frac{1}{4} \cdot 40 = 10$

The video player interface includes a play button, a progress bar, a timestamp of 07:21, and settings, full screen, and share icons.

- How to estimate the percent of a number.

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.21 Estimating with Percent

The table below shows some commonly used percents and their fraction equivalents.

Percent-Fraction Equivalents				
$20\% = \frac{1}{5}$	$50\% = \frac{1}{2}$	$80\% = \frac{4}{5}$	$25\% = \frac{1}{4}$	$33\frac{1}{3}\% = \frac{1}{3}$
$30\% = \frac{3}{10}$	$60\% = \frac{3}{5}$	$90\% = \frac{9}{10}$	$75\% = \frac{3}{4}$	$66\frac{2}{3}\% = \frac{2}{3}$
$40\% = \frac{2}{5}$	$70\% = \frac{7}{10}$	$100\% = 1$		

EXAMPLE 1

Estimate each percent.

1. 20% of 58

20% is $\frac{1}{5}$.

Round 58 to 60 since it is divisible by 5.

$$\frac{1}{5} \times 60 = \frac{1}{\cancel{5}} \times \frac{\cancel{60}^{12}}{1} = 12$$

So, 20% of 58 is about 12.

2. 76% of 25.

76% is close to 75% or $\frac{3}{4}$.

Round 25 to 24 since it is divisible by 4.

$$\frac{3}{4} \times 24 = \frac{3}{\cancel{4}} \times \frac{\cancel{24}^6}{1} = 18$$

So, 76% of 25 is about 18.

Name: _____ Date _____ Score _____

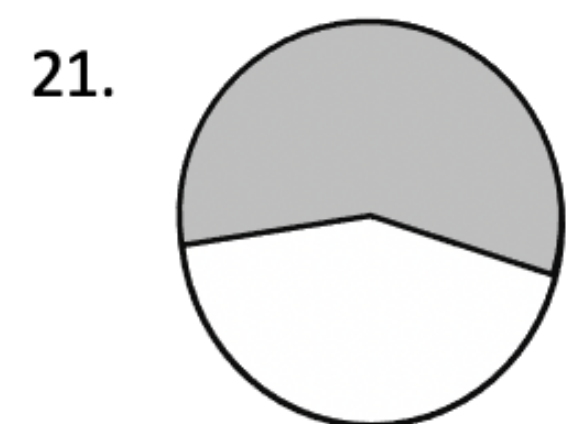
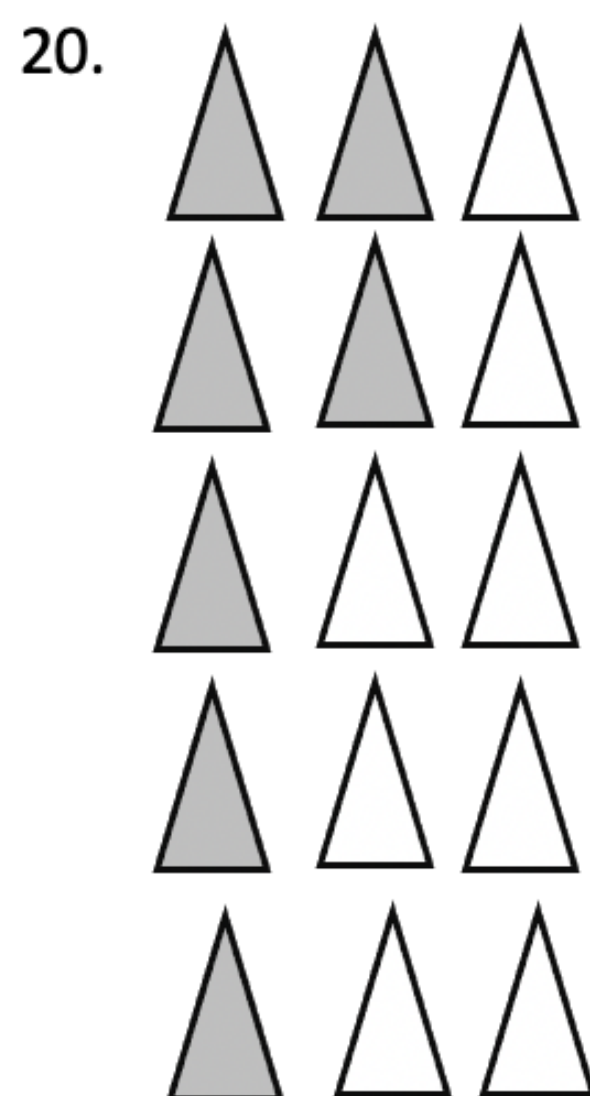
PRACTICE

1.21 Estimating with Percent

Estimate each percent.

- | | | |
|---------------|----------------|----------------|
| 1. 58% of 5 | 2. 50% of 39 | 3. 19% of 31 |
| 4. 49% of 71 | 5. 79% of 16 | 6. 33% of 61 |
| 7. 41% of 10 | 8. 24% of 13 | 9. 73% of 61 |
| 10. 38% of 42 | 11. 52% of 118 | 12. 91% of 82 |
| 13. 75% of 17 | 14. 82% of 24 | 15. 62% of 34 |
| 16. 27% of 81 | 17. 19% of 94 | 18. 67% of 241 |

Estimate the percent of the figure that is shaded.



Name: _____ Date _____ Score _____

PRACTICE

1.21 Estimating with Percent

Answers

1. $\frac{3}{5} \times 5 = 3$

2. $\frac{1}{2} \times 40 = 20$

3. $\frac{1}{5} \times 30 = 6$

4. $\frac{1}{2} \times 70 = 35$

5. $\frac{4}{5} \times 15 = 12$

6. $\frac{1}{3} \times 60 = 20$

7. $\frac{2}{5} \times 10 = 4$

8. $\frac{1}{4} \times 12 = 3$

9. $\frac{3}{4} \times 60 = 45$

10. $\frac{2}{5} \times 40 = 16$

11. $\frac{1}{2} \times 120 = 60$

12. $\frac{9}{10} \times 80 = 72$

13. $\frac{3}{4} \times 16 = 12$

14. $\frac{4}{5} \times 25 = 20$

15. $\frac{3}{5} \times 35 = 21$

16. $\frac{1}{4} \times 80 = 20$

17. $\frac{1}{5} \times 95 = 19$


18. $\frac{2}{3} \times 240 = 160$

19. about 75%

20. about 50%

21. about 50%

LESSON 1.22 LEAST COMMON MULTIPLE



USE LCM TO SOLVE A PROBLEM

In a car racing competition, three racers will stop to refill their fuel. The first racer does it every 4 laps, the second racer does it every 5 laps and the last one does it every 6 laps. From the start of the race, after how many laps will they meet at the fuel station, if they travel at the same speed?

number of laps = LCM of 4, 5 and 6

Write the prime factorization of 4, 5 and 6.

4

5

6

2 × 2

1 × 5

2 × 3

4 = 2 × 2

5 = 1 × 5

6 = 2 × 3

LCM = 2 × 2 × 5 × 3 = 60

Find the common prime factors.

To find LCM, multiply the common prime factor 2 to the remaining prime factors.

06:43

How to find the least common multiple of two or more numbers

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.22 Least Common Multiple

A multiple of a number is the product of the number and any whole number. The multiples of 2 are below.

$$1 \times 2 = 2 \quad 2 \times 2 = 4 \quad 3 \times 2 = 6 \quad 4 \times 2 = 8 \quad 5 \times 2 = 10$$

The smallest number other than 0 that is a multiple of two or more whole numbers is the least common multiple (LCM) of the numbers.

EXAMPLE 1

Find the LCM of 4 and 6 by making a list.

Step 1: List the nonzero multiples.

multiples of 4: 4, 8, 12, 16, 20, ...

multiples of 6: 6, 12, 18, 24, 30, ...

Step 2: Identify the LCM from the common multiples.

The LCM of 4 and 6 is 12.

Name: _____ **Date** _____ **Score** _____

PRACTICE

1.22 Least Common Multiple

Find the LCM of each set of numbers.

1. 4 and 36

2. 4 and 5

3. 7 and 10

4. 6 and 30

5. 8 and 28

6. 12 and 15

7. 12 and 14

8. 5 and 25

9. 3 and 8

10. 7 and 49

11. 5 and 6

12. 6 and 14

13. 9 and 24

14. 3, 5, and 12

15. 3 and 42

16. 5 and 13

17. 6 and 9

18. 12 and 18

19. 5 and 14

20. 15 and 18

21. 6, 16, and 24

Name: _____ Date _____ Score _____


PRACTICE

1.22 Least Common Multiple

Answers


- | | |
|--------|--------|
| 1. 36 | 12. 42 |
| 2. 20 | 13. 72 |
| 3. 70 | 14. 60 |
| 4. 30 | 15. 42 |
| 5. 56 | 16. 65 |
| 6. 60 | 17. 18 |
| 7. 84 | 18. 36 |
| 8. 25 | 19. 70 |
| 9. 24 | 20. 90 |
| 10. 49 | 21. 48 |
| 11. 30 | |

LESSON 1.23 *ADDING AND SUBTRACTING FRACTIONS WITH LIKE DENOMINATORS*



A Fraction Problem

A pizza was cut into 8 equal parts. John ate a slice of pizza, Joey ate 2 slices and Janice ate 3 slices. What fraction of the pizza is left for me?



John Joey Janice

$$\frac{1}{8} + \frac{2}{8} + \frac{3}{8} = \frac{6}{8}$$

Mine

$$\frac{8}{8} - \frac{6}{8} = \frac{2}{8}$$

There are 2 slices left for me.
That is $\frac{2}{8}$ or $\frac{1}{4}$ of the pizza.

▶
05:19

MATH

⚙️
🖥️
🔍

How to add and subtract fractions with like denominators

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.23 Adding and Subtracting Fractions with Like Denominators

Fractions with the same denominator are called like fractions.

- To add like fractions, add the numerators. Use the same denominator in the sum.
- To subtract like fractions, subtract the numerators. Use the same denominator in the difference.

EXAMPLE 1

Find the sum of $\frac{3}{5}$ and $\frac{3}{5}$.

Estimate $\frac{1}{2} + \frac{1}{2} = 1$

$$\frac{3}{5} + \frac{3}{5} = \frac{3+3}{5}$$

Add the numerators.

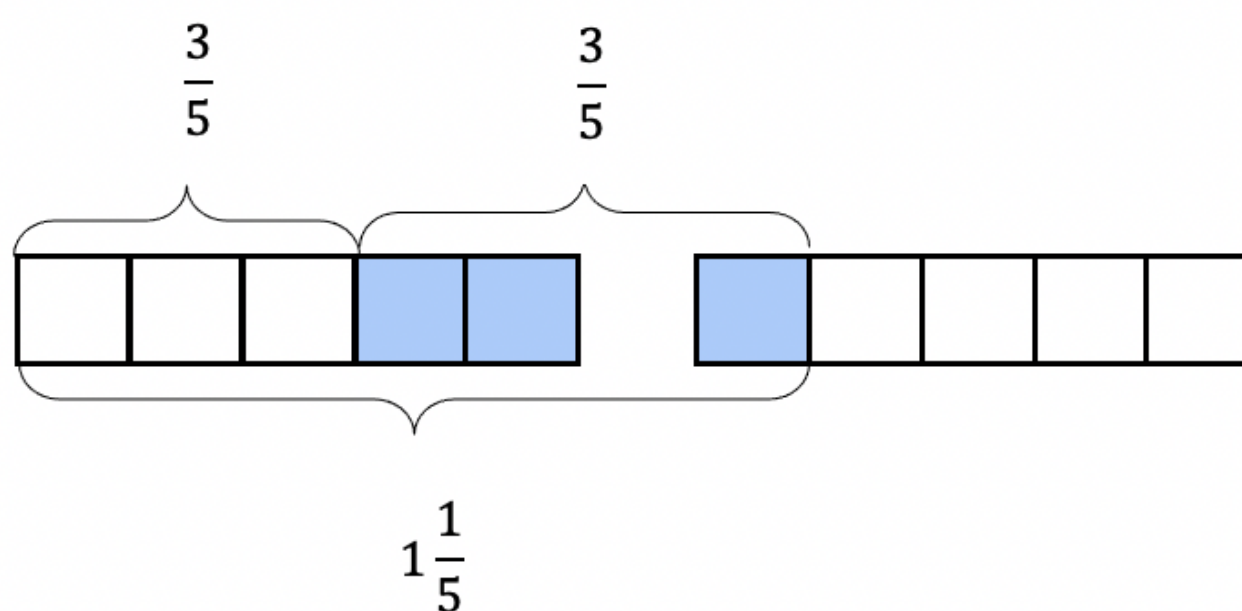
$$= \frac{6}{5}$$

Simplify.

$$= 1\frac{1}{5}$$

Write the improper fraction as a mixed number.

Compared to the estimate, the answer is reasonable.



Name: _____ Date _____ Score _____

PRACTICE**1.23 Adding and Subtracting Fractions with Like Denominators****Add or subtract. Write in simplest form.**

1. $\frac{2}{9} + \frac{4}{9}$

2. $\frac{3}{4} + \frac{1}{4}$

3. $\frac{5}{6} - \frac{1}{6}$

4. $\frac{7}{8} + \frac{3}{8}$

5. $\frac{10}{11} - \frac{2}{11}$

6. $\frac{3}{10} - \frac{1}{10}$

7. $\frac{5}{8} - \frac{3}{8}$

8. $\frac{2}{5} + \frac{4}{5}$

9. $\frac{7}{8} - \frac{3}{8}$

10. $\frac{1}{6} + \frac{5}{6}$

11. $\frac{9}{10} - \frac{4}{10}$

12. $\frac{7}{9} + \frac{2}{9}$

13. $\frac{3}{10} + \frac{3}{10}$

14. $\frac{5}{7} - \frac{2}{7}$

15. $\frac{2}{3} - \frac{1}{3}$

16. $\frac{9}{12} + \frac{3}{12}$

17. $\frac{11}{12} - \frac{7}{12}$

18. $\frac{3}{8} + \frac{1}{8}$

19. $\frac{5}{6} + \frac{4}{6}$

20. $\frac{5}{6} + \frac{3}{6}$

21. $\frac{6}{7} + \frac{5}{7}$

Name: _____ Date _____ Score _____

PRACTICE

1.23 Adding and Subtracting Fractions with Like Denominators

Answers

1. $\frac{2}{3}$

2. 1

3. $\frac{2}{3}$

4. $1\frac{1}{4}$

5. $\frac{8}{11}$

6. $\frac{1}{5}$

7. $\frac{1}{4}$

8. $1\frac{1}{5}$

9. $\frac{1}{2}$

10. 1

11. $\frac{1}{2}$

12. 1

13. $\frac{3}{5}$

14. $\frac{3}{7}$

15. $\frac{1}{3}$

16. 1

17. $\frac{1}{3}$

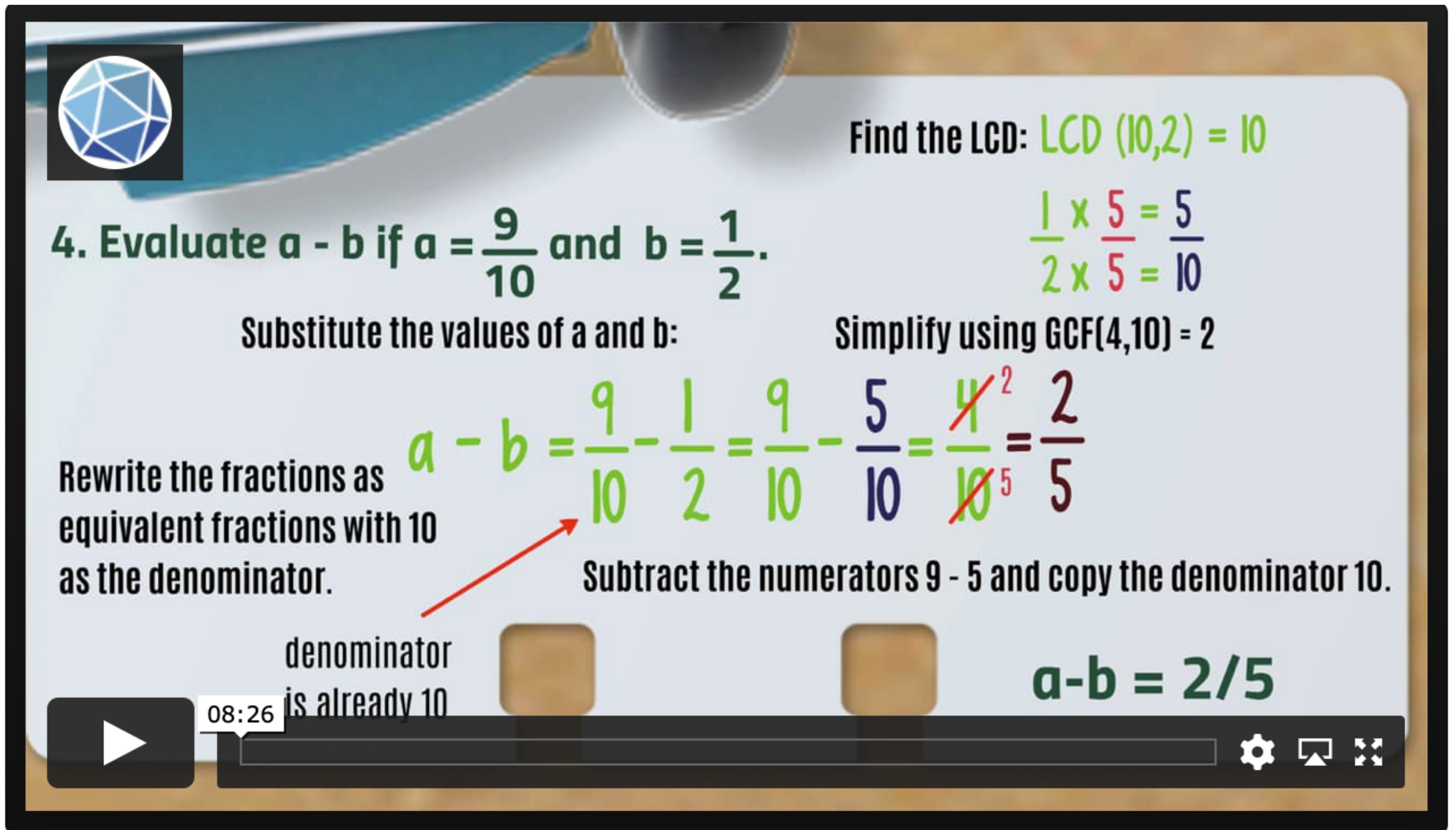
18. $\frac{1}{2}$


19. $1\frac{1}{2}$

20. $1\frac{1}{3}$

21. $1\frac{4}{7}$

LESSON 1.24 ADDING AND SUBTRACTING FRACTIONS WITH UNLIKE DENOMINATORS





4. Evaluate $a - b$ if $a = \frac{9}{10}$ and $b = \frac{1}{2}$.

Substitute the values of a and b :

Find the LCD: $\text{LCD}(10, 2) = 10$

$$\frac{1}{2} \times \frac{5}{5} = \frac{5}{10}$$

Simplify using $\text{GCF}(4, 10) = 2$

Rewrite the fractions as equivalent fractions with 10 as the denominator.

$$a - b = \frac{9}{10} - \frac{1}{2} = \frac{9}{10} - \frac{5}{10} = \frac{\cancel{4}^2}{\cancel{10}_5} = \frac{2}{5}$$

Subtract the numerators $9 - 5$ and copy the denominator 10.

denominator is already 10

$a - b = 2/5$

08:26

How to add and subtract fractions with unlike denominators

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.24 Adding and Subtracting Fractions with Unlike Denominators

To find the sum or difference of two fractions with unlike denominators, rename the fractions using least common denominator (LCD). Then add or subtract and simplify.

EXAMPLE 1

Find $\frac{1}{3} + \frac{5}{6}$.

The LCD of $\frac{1}{3}$ and $\frac{5}{6}$ is 6.

Write the problem.

$$\begin{array}{r} \frac{1}{3} \\ + \frac{5}{6} \\ \hline \end{array} \longrightarrow$$

Rename $\frac{1}{3}$ as $\frac{2}{6}$.

$$\frac{1}{3} \times \frac{2}{2} = \frac{2}{6} \longrightarrow$$

$$\frac{5}{6}$$

Add the fractions.

$$\begin{array}{r} \frac{2}{6} \\ + \frac{5}{6} \\ \hline \frac{7}{6} \text{ or } 1\frac{1}{6} \end{array}$$

Name: _____ Date _____ Score _____

PRACTICE

1.24 Adding and Subtracting Fractions with Unlike Denominators

Add or subtract. Write in simplest form.

$$\begin{array}{r} 1. \quad \frac{2}{3} \\ + \frac{5}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \frac{2}{3} \\ - \frac{1}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad \frac{4}{7} \\ - \frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad \frac{5}{6} \\ + \frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad \frac{1}{2} \\ + \frac{7}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad \frac{1}{6} \\ - \frac{1}{12} \\ \hline \end{array}$$

$$7. \frac{5}{8} - \frac{1}{4}$$

$$8. \frac{1}{5} + \frac{5}{6}$$

$$9. \frac{1}{2} - \frac{2}{5}$$

$$10. \frac{3}{4} - \frac{1}{12}$$

$$11. \frac{3}{5} + \frac{2}{3}$$

$$12. \frac{11}{12} - \frac{1}{6}$$

$$13. \frac{1}{3} + \frac{5}{7}$$

$$14. \frac{3}{4} + \frac{11}{12}$$

Name: _____ Date _____ Score _____

15. $\frac{11}{12} - \frac{3}{4}$

16. $\frac{4}{5} + \frac{1}{2}$

17. $\frac{2}{3} - \frac{1}{4}$

18. $\frac{3}{5} + \frac{9}{10}$

19. How much more is $\frac{3}{4}$ ounce than $\frac{1}{3}$ ounce?

20. How much more is $\frac{3}{8}$ gallon than $\frac{1}{4}$ gallon?

Name: _____ Date _____ Score _____

PRACTICE

1.24 Adding and Subtracting Fractions with Unlike Denominators

Answers

1. $1\frac{1}{2}$

2. $\frac{1}{2}$

3. $\frac{1}{14}$

4. $1\frac{7}{12}$

5. $1\frac{3}{8}$

6. $\frac{1}{12}$

7. $\frac{3}{8}$

8. $1\frac{1}{30}$

9. $\frac{1}{10}$

10. $\frac{2}{3}$

11. $1\frac{4}{15}$

12. $\frac{3}{4}$

13. $1\frac{1}{21}$

14. $1\frac{2}{3}$

15. $\frac{1}{6}$

16. $1\frac{3}{10}$


17. $\frac{5}{12}$

18. $1\frac{1}{2}$

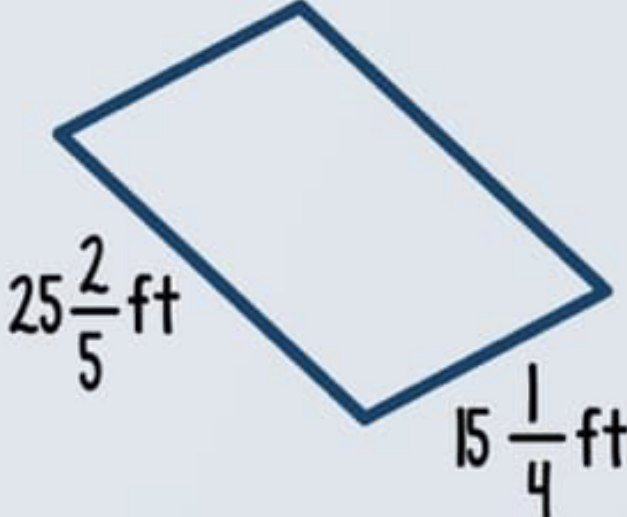
19. $\frac{5}{12}$ oz

20. $\frac{1}{8}$ gal

LESSON 1.25 ADDING AND SUBTRACTING MIXED NUMBERS



4. Find the perimeter of the rectangular fence below:



Perimeter is the distance around the 2D shape. It is the sum of all the sides.

To find the perimeter of the given fence, add the 4 sides.
Change dissimilar fractions to similar fractions.


Find the LCD.
LCD (5,4): 20

$$\begin{array}{r} 25\frac{2}{5} \times 4 \\ + 15\frac{1}{4} \times 5 \\ \hline \end{array}$$




Rewrite the fractions with denominator 20.

$$\begin{array}{r} 25\frac{8}{20} \\ + 15\frac{5}{20} \\ \hline 40\frac{13}{20} \end{array}$$

Add the numerators:
 $8 + 5 = 13$
Copy the denominator: 20



09:29



How to add and subtract mixed numbers

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.25 Adding and Subtracting Mixed Numbers

To add or subtract mixed numbers:

1. Add or subtract the fractions.
2. Then add or subtract the whole numbers.
3. Rename and simplify if necessary.

EXAMPLE 1

Find $2\frac{1}{3} + 4\frac{1}{4}$.

Estimate $2 + 4 = 6$.

The LCM of 3 and 4 is 12.

Rename the fractions.

Add the fractions.

Add the whole numbers.

$$\begin{array}{r}
 2\frac{1}{3} \times \frac{4}{4} \\
 + 4\frac{1}{4} \times \frac{3}{3} \\
 \hline
 \end{array}
 \longrightarrow
 \begin{array}{r}
 2\frac{4}{12} \\
 + 4\frac{3}{12} \\
 \hline
 \end{array}
 \longrightarrow
 \begin{array}{r}
 2\frac{4}{12} \\
 + 4\frac{3}{12} \\
 \hline
 7 \\
 12
 \end{array}
 \longrightarrow
 \begin{array}{r}
 2\frac{4}{12} \\
 + 4\frac{3}{12} \\
 \hline
 6\frac{7}{12}
 \end{array}$$

$2\frac{1}{3} + 4\frac{1}{4} = 6\frac{7}{12}$. Compared to the estimate, the answer is reasonable.

Name: _____ Date _____ Score _____

PRACTICE

1.25 Adding and Subtracting Mixed Numbers

Add or subtract. Write in simplest form.

$$\begin{array}{r} 1. \quad 2\frac{1}{4} \\ + 3\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 2\frac{3}{7} \\ + 4\frac{2}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 4\frac{5}{6} \\ - 3\frac{1}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 6\frac{2}{3} \\ + 3\frac{4}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 8\frac{5}{12} \\ - 1\frac{1}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 8\frac{7}{12} \\ - 5\frac{5}{12} \\ \hline \end{array}$$

$$7. \quad 9\frac{3}{4} - 7\frac{1}{2}$$

$$8. \quad 10\frac{3}{5} - 2\frac{1}{2}$$

$$9. \quad 5\frac{2}{3} - \frac{1}{6}$$

$$10. \quad 7\frac{11}{12} - 3\frac{7}{12}$$

$$11. \quad 2\frac{1}{8} + 5\frac{7}{8}$$

$$12. \quad 6\frac{5}{6} + \frac{3}{8}$$

$$13. \quad 8\frac{1}{2} - 5\frac{3}{10}$$

$$14. \quad 5\frac{8}{9} - 3\frac{1}{6}$$

$$15. \quad 1\frac{2}{3} + 4\frac{8}{9}$$

$$16. \quad 9\frac{4}{5} + 2\frac{2}{3}$$

$$17. \quad 4\frac{3}{5} + 9\frac{1}{3}$$

$$18. \quad 8\frac{3}{4} + 6\frac{2}{5}$$

Evaluate each expression if $a = 1\frac{2}{3}$, $b = \frac{1}{4}$, and $c = 3\frac{5}{6}$.

19. $c + a$

20. $a + b$

Name: _____ Date _____ Score _____

PRACTICE

1.25 Adding and Subtracting Mixed Numbers

Answers

1. 6

2. $6\frac{5}{7}$

3. $1\frac{2}{3}$

4. $10\frac{1}{9}$

5. $7\frac{1}{3}$

6. $3\frac{1}{6}$

7. $2\frac{1}{4}$

8. $8\frac{1}{10}$

9. $5\frac{1}{2}$

10. $4\frac{1}{3}$

11. 8

12. $7\frac{5}{24}$

13. $3\frac{1}{5}$

14. $2\frac{13}{18}$

15. $6\frac{5}{9}$

16. $12\frac{7}{15}$

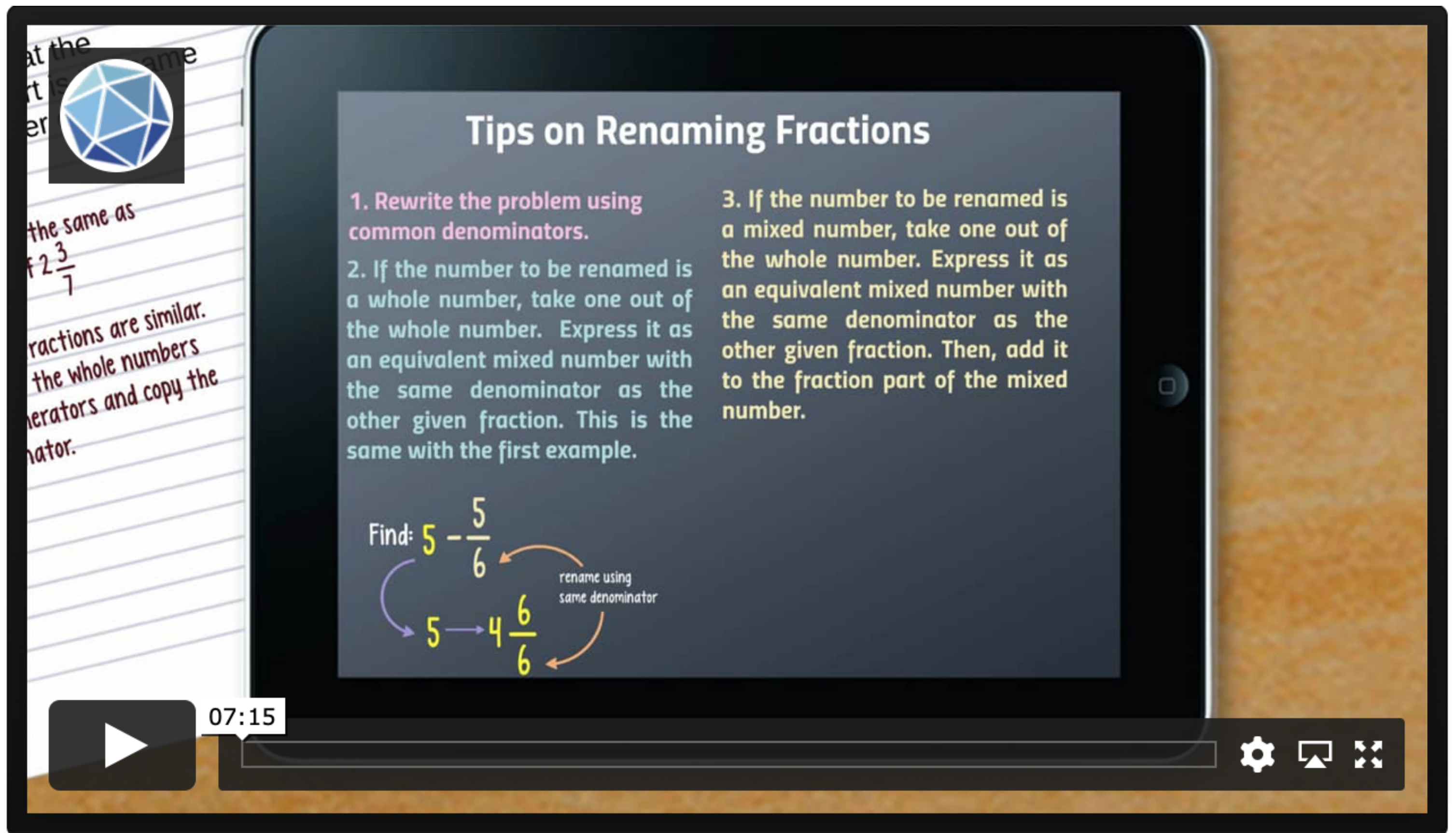
17. $13\frac{14}{15}$

18. $15\frac{3}{20}$

19. $5\frac{1}{2}$

20. $1\frac{11}{12}$

LESSON 1.26 SUBTRACTING MIXED NUMBERS WITH RENAMING



The video player displays a lesson titled "Tips on Renaming Fractions". The tips are as follows:

1. Rewrite the problem using common denominators.
2. If the number to be renamed is a whole number, take one out of the whole number. Express it as an equivalent mixed number with the same denominator as the other given fraction. This is the same with the first example.
3. If the number to be renamed is a mixed number, take one out of the whole number. Express it as an equivalent mixed number with the same denominator as the other given fraction. Then, add it to the fraction part of the mixed number.

Below the tips, a diagram illustrates the renaming process for the problem "Find: $5 - \frac{5}{6}$ ". A purple arrow points from the whole number 5 to a new whole number 4, and an orange arrow points from the new fraction $\frac{6}{6}$ to the original fraction $\frac{5}{6}$. The text "rename using same denominator" is written between the two fractions.

At the bottom left of the video player, there is a play button icon and a timestamp of 07:15. At the bottom right, there are icons for settings, full screen, and a share icon.

How to subtract mixed numbers involving remaining

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.26 Subtracting Mixed Numbers with Renaming

Sometimes it is necessary to rename the fraction part of a mixed number as an improper fraction before you can subtract.

EXAMPLE 1

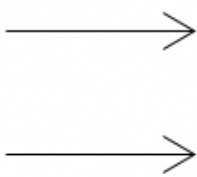
Find $5 - 2\frac{1}{4}$.

Write the problem.

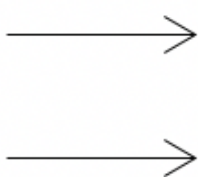
Rename 5 as $4\frac{4}{4}$.

Subtract.

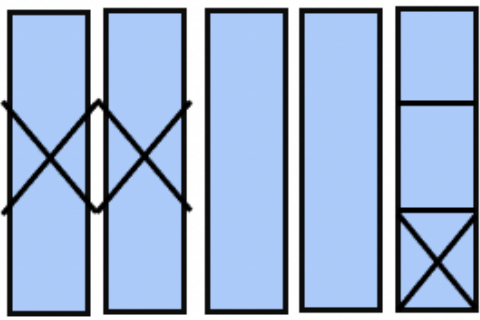
$$\begin{array}{r} 5 \\ - 2\frac{1}{4} \\ \hline \end{array}$$



$$\begin{array}{r} 4\frac{4}{4} \\ - 2\frac{1}{4} \\ \hline \end{array}$$



$$\begin{array}{r} 4\frac{4}{4} \\ - 2\frac{1}{4} \\ \hline 2\frac{3}{4} \end{array}$$



Rename 5 as $4\frac{4}{4}$.
Then cross out $2\frac{1}{4}$.

So, $5 - 2\frac{1}{4} = 2\frac{3}{4}$.

Name: _____ Date _____ Score _____

PRACTICE

1.26 Subtracting Mixed Numbers with Renaming

Subtract. Write in simplest form.

$$\begin{array}{r} 1. \quad 4\frac{5}{7} \\ - 1\frac{6}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 10\frac{5}{9} \\ - 2\frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 12\frac{2}{5} \\ - 4\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 13\frac{1}{2} \\ - 7\frac{4}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 4 \\ - 3\frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 11\frac{1}{4} \\ - 5\frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 10 \\ - 5\frac{1}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 8\frac{1}{3} \\ - 2\frac{5}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 7\frac{1}{6} \\ - 3\frac{5}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 3\frac{1}{4} \\ - 1\frac{5}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 12\frac{5}{8} \\ - 3\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 9\frac{7}{10} \\ - 6\frac{4}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 6\frac{1}{5} \\ - 2\frac{7}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 15\frac{1}{3} \\ - 6\frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 9\frac{2}{5} \\ - 7\frac{9}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 12 \\ - 5\frac{7}{11} \\ \hline \end{array}$$

$$17. \quad 5\frac{1}{2} - \frac{5}{8}$$

$$18. \quad 7 - 2\frac{3}{8}$$

$$17. \quad 4\frac{1}{5} - 1\frac{1}{2}$$

$$18. \quad 7\frac{1}{4} - 6\frac{5}{6}$$

Name: _____ Date _____ Score _____

PRACTICE

1.26 Subtracting Mixed Numbers with Renaming

Answers

1. $2\frac{6}{7}$

2. $7\frac{8}{9}$

3. $7\frac{13}{20}$

4. $5\frac{7}{10}$

5. $\frac{2}{3}$

6. $5\frac{7}{8}$

7. $4\frac{3}{4}$

8. $5\frac{7}{9}$

9. $3\frac{1}{3}$

10. $1\frac{5}{8}$

11. $8\frac{7}{8}$

12. $2\frac{9}{10}$

13. $3\frac{1}{2}$

14. $8\frac{5}{6}$

15. $1\frac{1}{2}$

16. $6\frac{4}{11}$

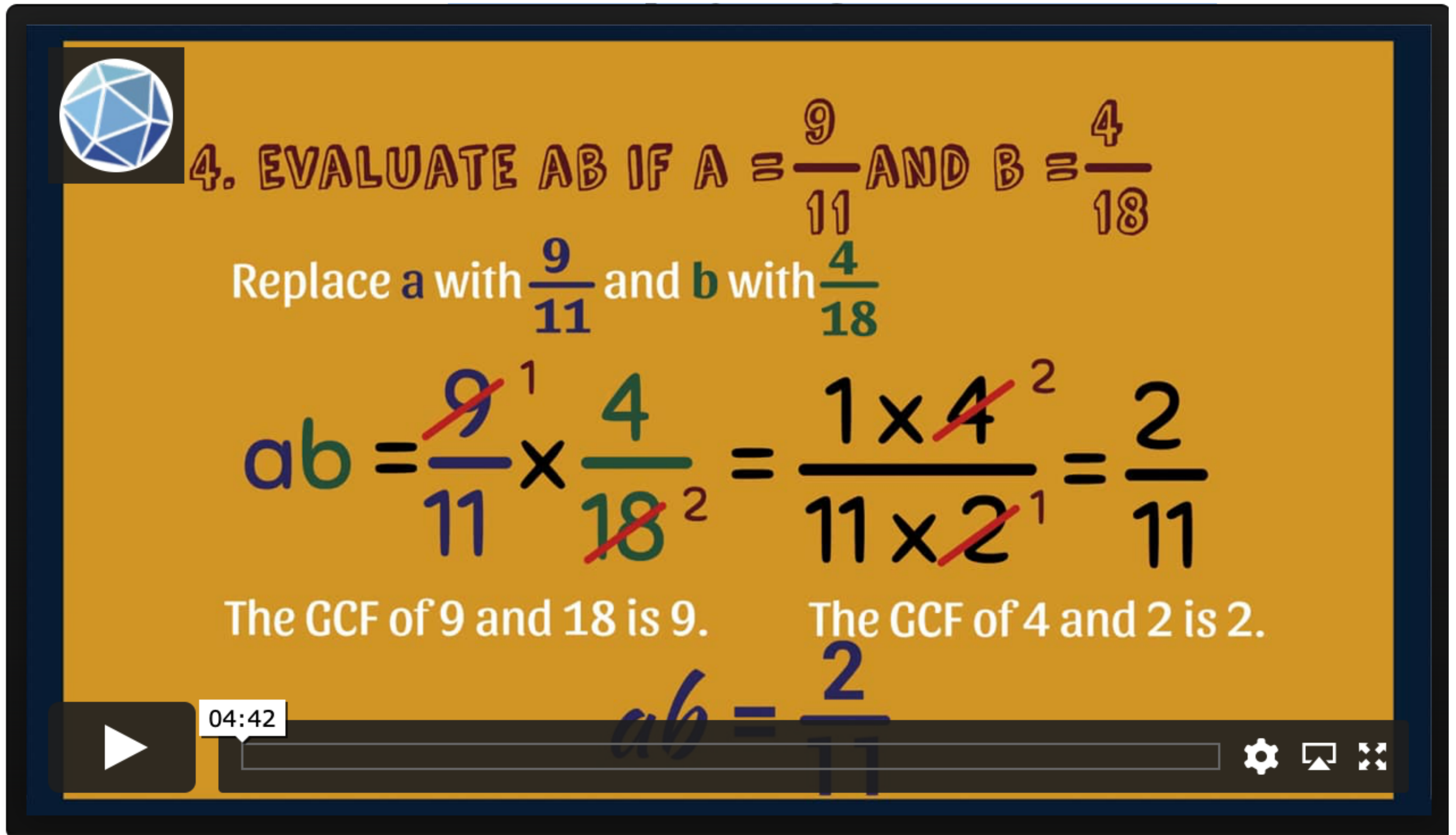
17. $4\frac{7}{8}$

18. $4\frac{5}{8}$

19. $2\frac{7}{10}$

20. $\frac{5}{12}$

LESSON 1.27 MULTIPLYING FRACTIONS



4. EVALUATE AB IF $A = \frac{9}{11}$ AND $B = \frac{4}{18}$

Replace a with $\frac{9}{11}$ and b with $\frac{4}{18}$

$$ab = \frac{9}{11} \times \frac{4}{18} = \frac{1 \times 4}{11 \times 2} = \frac{2}{11}$$

The GCF of 9 and 18 is 9. The GCF of 4 and 2 is 2.

04:42

$ab = \frac{2}{11}$

How to multiply fractions

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.27 Multiplying Fractions

Type of Product	What To Do	Example
two fractions	Multiply the numerators. Then multiply the denominators.	$\frac{2}{3} \times \frac{4}{5} = \frac{2 \times 4}{3 \times 5} = \frac{8}{15}$
fraction and a whole number	Rename the whole number as an improper fraction. Multiply the numerators. Then multiply the denominators.	$\frac{3}{11} \times 6 = \frac{3}{11} \times \frac{6}{1} = \frac{18}{11} = 1\frac{7}{11}$

EXAMPLE 1

Find $\frac{2}{5} \times \frac{3}{4}$.Estimate: $\frac{1}{2} \times 1 = \frac{1}{2}$

$$\frac{2}{5} \times \frac{3}{4} = \frac{2 \times 3}{5 \times 4}$$

Multiply the numerators. Multiply the denominators.

$$= \frac{6}{20} \text{ or } \frac{3}{10}$$

Simplify. Compare to the estimate.

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PRACTICE

1.27 Multiplying Fractions

Multiply. Write in simplest form.

1. $\frac{3}{4} \times \frac{1}{2}$

2. $\frac{2}{5} \times \frac{3}{7}$

3. $\frac{1}{3} \times \frac{2}{5}$

4. $\frac{3}{8} \times 10$

5. $\frac{1}{3} \times 6$

6. $\frac{1}{6} \times \frac{3}{5}$

7. $\frac{1}{5} \times \frac{10}{11}$

8. $21 \times \frac{4}{7}$

9. $\frac{5}{12} \times \frac{3}{8}$

10. $\frac{5}{9} \times 18$

11. $\frac{1}{10} \times \frac{4}{7}$

12. $\frac{5}{6} \times \frac{8}{9}$

For exercises 13-21, evaluate each expression if $x = 4$, $y = \frac{2}{3}$, and $z = \frac{1}{4}$.

13. $\frac{3}{8}x$

14. xy

15. yz

16. xz

17. $9y$

18. $8z$

19. $3x$

20. $\frac{1}{3}x$

21. xyz

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PRACTICE

1.27 Multiplying Fractions

Answers

1. $\frac{3}{8}$

2. $\frac{6}{35}$

3. $\frac{2}{15}$

4. $3\frac{3}{4}$

5. 2

6. $\frac{1}{10}$

7. $\frac{2}{11}$

8. 12

9. $\frac{5}{32}$

10. 10

11. $\frac{2}{35}$

12. $\frac{20}{27}$

13. $1\frac{1}{2}$

14. $2\frac{2}{3}$

15. $\frac{1}{6}$

16. 1

17. 6

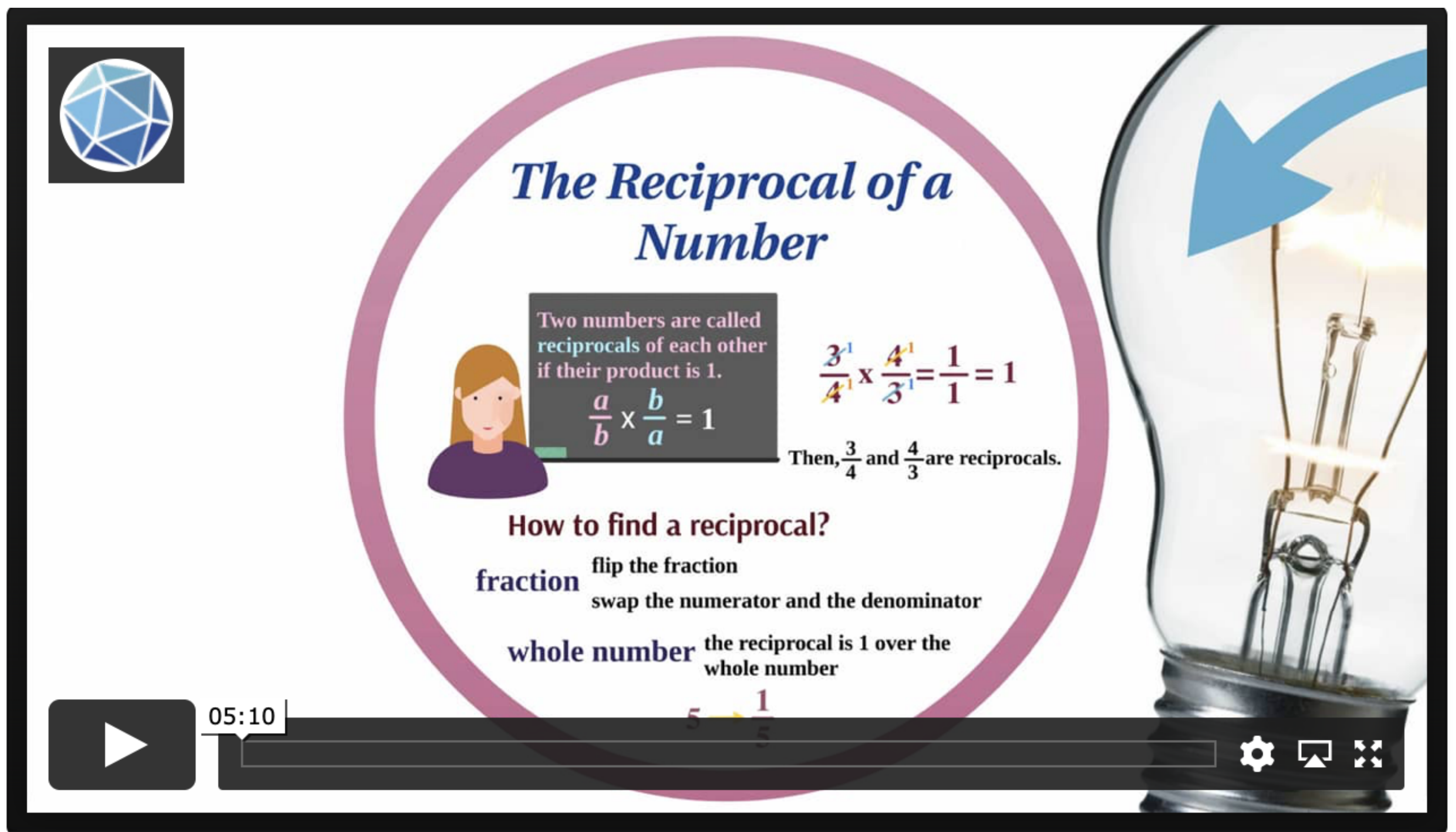
18. 2

19. $\frac{3}{4}$

20. $1\frac{1}{3}$

21. $\frac{2}{3}$

LESSON 1.28 *DIVIDING FRACTIONS*



The Reciprocal of a Number

Two numbers are called **reciprocals** of each other if their product is 1.

$$\frac{a}{b} \times \frac{b}{a} = 1$$

Then, $\frac{3}{4}$ and $\frac{4}{3}$ are reciprocals.

How to find a reciprocal?

fraction flip the fraction
swap the numerator and the denominator

whole number the reciprocal is 1 over the whole number

05:10

How to divide fractions

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STUDY GUIDE AND REVIEW

1.28 Dividing Fractions

When the product of two numbers is 1, the numbers are called reciprocals. You can use reciprocals to divide fractions. To divide by a fraction, multiply by its reciprocal.

EXAMPLE 1

Find $\frac{2}{3} \div \frac{4}{5}$.

$$\begin{aligned}\frac{2}{3} \div \frac{4}{5} &= \frac{2}{3} \times \frac{5}{4} \\ &= \frac{\cancel{2}^1}{3} \times \frac{5}{\cancel{4}_2} \\ &= \frac{5}{6}\end{aligned}$$

Multiply by the reciprocal, $\frac{5}{4}$.

Divide 2 and 4 by the GCF, 2.

Multiply numerators and denominators.

Name: _____ Date _____ Score _____

PRACTICE

1.28 Dividing Fractions

Find the reciprocal of each number.

1. $\frac{1}{2}$

2. 7

3. $\frac{8}{11}$

4. $\frac{3}{5}$

Divide. Write in simplest form.

5. $\frac{5}{6} \div \frac{1}{3}$

6. $8 \div \frac{4}{5}$

7. $\frac{3}{8} \div 9$

8. $15 \div \frac{5}{9}$

9. $\frac{5}{6} \div \frac{5}{12}$

10. $\frac{9}{10} \div \frac{1}{2}$

11. $\frac{7}{12} \div \frac{5}{6}$

12. $\frac{9}{10} \div \frac{3}{4}$

13. $\frac{6}{7} \div \frac{3}{11}$

14. $\frac{10}{11} \div 5$

15. $\frac{1}{2} \div \frac{3}{5}$

16. $\frac{9}{10} \div \frac{1}{4}$

17. $\frac{2}{5} \div \frac{4}{7}$

18. $\frac{1}{9} \div \frac{5}{12}$

19. $\frac{7}{9} \div \frac{1}{7}$

Name: _____ Date _____ Score _____

PRACTICE

1.28 Dividing Fractions

Answers

1. 2

2. $\frac{1}{7}$

3. $\frac{11}{8}$

4. $\frac{5}{3}$

5. $2\frac{1}{2}$

6. 10

7. $\frac{1}{24}$

8. 27

9. 2

10. $1\frac{4}{5}$

11. $\frac{7}{10}$

12. $1\frac{1}{5}$

13. $3\frac{1}{7}$

14. $\frac{2}{11}$

15. $\frac{5}{6}$

16. $3\frac{3}{5}$

17. $\frac{7}{10}$

18. $\frac{4}{15}$

19. $5\frac{4}{9}$

LESSON 1.29 MULTIPLYING MIXED NUMBERS



VIEW ON CHANGING MIXED NUMBERS TO IMPROPER FRACTIONS

For the numerator: Multiply the denominator by the whole number. Then, add the product to the numerator.

$$\begin{array}{c} + \\ 3 \quad \frac{4}{5} \\ \times \end{array} = \frac{(5 \times 3) + 4}{5}$$



Mixed Number is a whole number plus a fraction.

Improper fraction is a fraction where the numerator is greater than or equal to its denominator.

For the denominator: Copy the denominator.

How to multiply mixed numbers

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STUDY GUIDE AND REVIEW

1.29 Multiplying Mixed Numbers

To multiply mixed numbers, write the mixed numbers as improper fractions, and then multiply as with fractions.

EXAMPLE 1

Find $2\frac{1}{4} \times 1\frac{2}{3}$.

Estimate: $2 \times 2 = 4$

$$\begin{aligned} 2\frac{1}{4} \times 1\frac{2}{3} &= \frac{9}{4} \times \frac{5}{3} \\ &= \frac{\overset{3}{\cancel{9}} \times 5}{4 \times \underset{3}{\cancel{3}}} = \frac{15}{4} \text{ or } 3\frac{3}{4} \end{aligned}$$

Write mixed numbers as improper fractions.

Divide the numerator and denominator by their common factor, 3.

Simplify. Compare to the estimate.

Name: _____ Date _____ Score _____

PRACTICE

1.29 Multiplying Mixed Numbers

Multiply. Write in simplest form.

1. $\frac{1}{3} \times 1\frac{1}{4}$

2. $\frac{3}{4} \times 3\frac{1}{3}$

3. $1\frac{3}{5} \times 3\frac{2}{3}$

4. $\frac{4}{7} \times 3\frac{1}{9}$

5. $4\frac{1}{6} \times \frac{9}{10}$

6. $\frac{8}{9} \times 5\frac{1}{7}$

7. $3\frac{3}{4} \times 2\frac{4}{5}$

8. $20 \times 1\frac{2}{5}$

9. $5\frac{3}{4} \times 1\frac{1}{11}$

10. $2\frac{1}{2} \times \frac{3}{5}$

11. $6\frac{1}{5} \times \frac{1}{2}$

12. $\frac{5}{7} \times 4\frac{1}{5}$

13. $1\frac{3}{8} \times 2\frac{2}{7}$

14. $3\frac{1}{3} \times 2\frac{1}{4}$

15. $2\frac{5}{8} \times 6$

16. $\frac{5}{7} \times 4\frac{3}{8}$

17. $2\frac{4}{9} \times \frac{6}{11}$

18. $14 \times 2\frac{5}{7}$

For exercises 19 – 20, evaluate each expression if $r = 1\frac{2}{3}$, $s = 2\frac{1}{5}$, and $t = \frac{3}{4}$.

19. st

20. $4t$

Name: _____ Date _____ Score _____

PRACTICE

1.29 Multiplying Mixed Numbers

Answers

1. $\frac{5}{12}$

2. $2\frac{1}{2}$

3. $5\frac{13}{15}$

4. $1\frac{7}{9}$

5. $3\frac{3}{4}$

6. $4\frac{4}{7}$

7. $10\frac{1}{2}$

8. 28

9. $6\frac{3}{11}$

10. $1\frac{1}{2}$

11. $3\frac{1}{10}$

12. 3

13. $3\frac{1}{7}$

14. $7\frac{1}{2}$

15. $15\frac{3}{4}$

16. $3\frac{1}{8}$

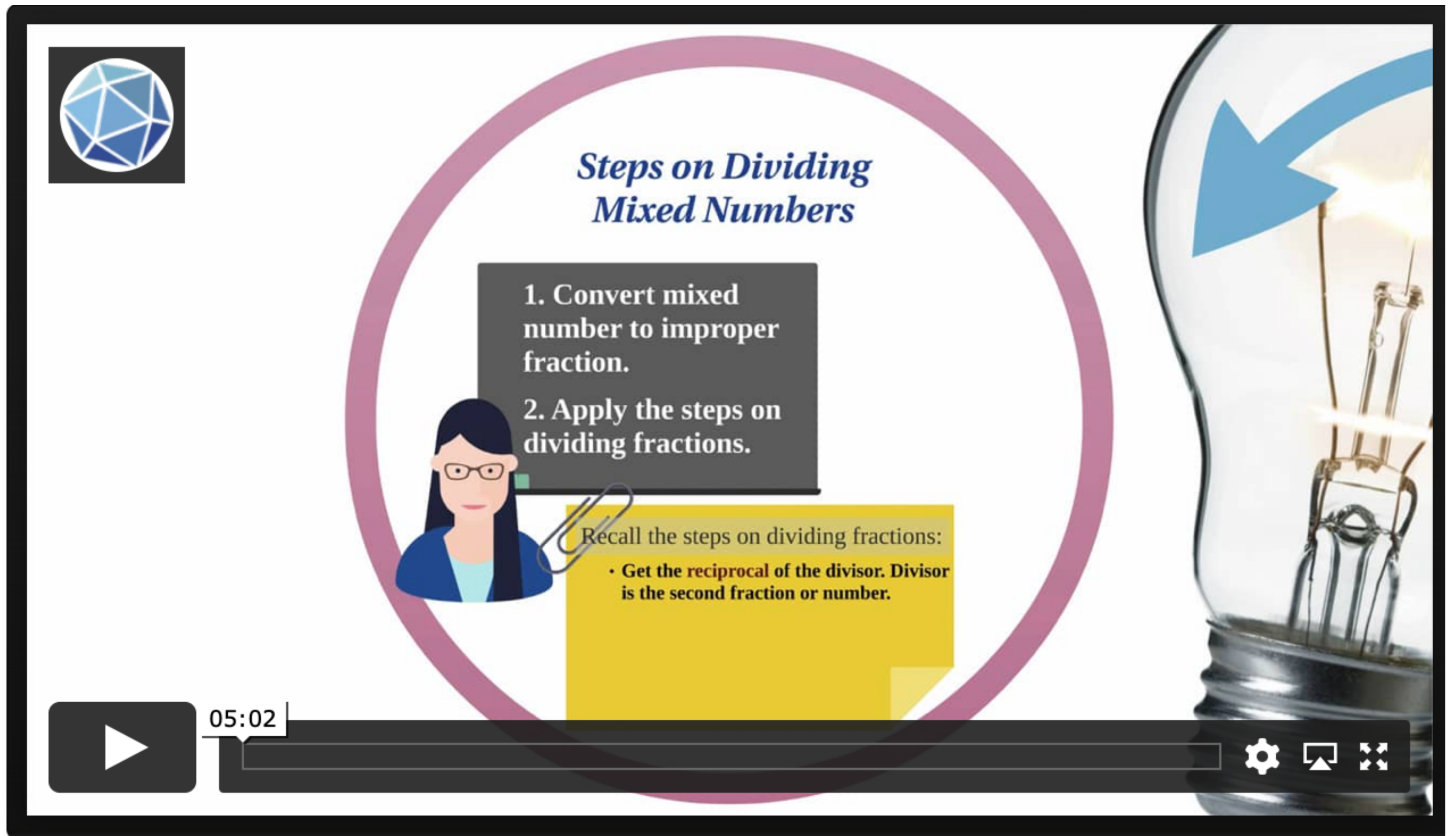
17. $1\frac{1}{3}$

18. 38

19. $1\frac{13}{20}$

20. 3

LESSON 1.30 *DIVING MIXED NUMBERS*



How to divide mixed numbers

Name: _____ Date _____ Score _____

STUDY GUIDE AND REVIEW

1.30 Dividing Mixed Numbers

To divide mixed numbers, express each mixed number as an improper fraction. Then divide as with fractions.

EXAMPLE 1

Find $2\frac{2}{3} \div 1\frac{1}{5}$.

Estimate: $3 \div 1 = 3$

$$2\frac{2}{3} \div 1\frac{1}{5} = \frac{8}{3} \div \frac{6}{5}$$

Write mixed numbers as improper fractions.

$$= \frac{8}{3} \times \frac{5}{6}$$

Multiply by the reciprocal, $\frac{5}{6}$.

$$= \frac{\cancel{8}^4 \times 5}{3 \times \cancel{6}_3}$$

Divide 8 and 6 by the GCF, 2.

$$= \frac{20}{9} \text{ or } 2\frac{2}{9}$$

Simplify. Compare to the estimate.

Name: _____ Date _____ Score _____

PRACTICE

1.30 Dividing Mixed Numbers

Divide. Write in simplest form.

1. $2\frac{5}{6} \div 6\frac{4}{5}$

2. $1\frac{1}{3} \div 3$

3. $2\frac{1}{2} \div 4\frac{2}{7}$

4. $1\frac{2}{9} \div 1\frac{5}{6}$

5. $3\frac{5}{6} \div 1\frac{1}{3}$

6. $2\frac{2}{9} \div 1\frac{1}{3}$

7. $4\frac{6}{7} \div 3\frac{2}{5}$

8. $6 \div 2\frac{2}{5}$

9. $3\frac{1}{9} \div 7$

10. $6\frac{3}{4} \div 1\frac{7}{20}$

11. $1\frac{7}{9} \div \frac{4}{9}$

12. $3\frac{1}{5} \div 1\frac{7}{9}$

13. $31\frac{2}{3} \div 7\frac{3}{5}$

14. $1\frac{3}{4} \div \frac{3}{4}$

15. $6\frac{2}{3} \div \frac{4}{5}$

16. $\frac{7}{10} \div 2\frac{5}{8}$

17. $5 \div 8\frac{3}{4}$

18. $6\frac{1}{6} \div 3\frac{1}{3}$

Evaluate each expression if $a = 1\frac{3}{8}$, $b = 4\frac{5}{7}$, and $c = 3\frac{3}{10}$.

19. $a \div c$

20. $c \div b$

21. $b \div a$

Name: _____ Date _____ Score _____

PRACTICE

1.30 Dividing Mixed Numbers

Answers

1. $\frac{5}{12}$

2. $\frac{4}{9}$

3. $\frac{7}{12}$

4. $\frac{2}{3}$

5. $2\frac{7}{8}$

6. $1\frac{2}{3}$

7. $1\frac{3}{7}$

8. $2\frac{1}{2}$

9. $\frac{4}{9}$

10. 5

11. 4

12. $1\frac{4}{5}$

13. $4\frac{1}{6}$

14. $2\frac{1}{3}$

15. $8\frac{1}{3}$

16. $\frac{4}{15}$

17. $\frac{4}{7}$

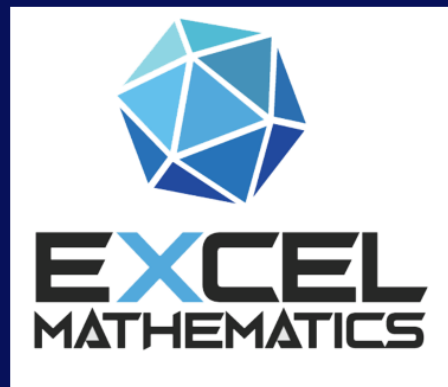
18. $1\frac{17}{20}$

19. $\frac{5}{12}$

20. $\frac{7}{10}$

21. $3\frac{3}{7}$

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