Module 4 - Lesson 24:

Divide decimal numbers by decimal numbers, resulting in whole-number quotients.

CCSS Standard – 5.NBT.B.7

FLUENCY (10-min)

Whiteboard Exchange: Multiply Multi-Digit Whole Numbers

Write and complete the equation by using the standard algorithm.

$35 \times 627 =$ _____

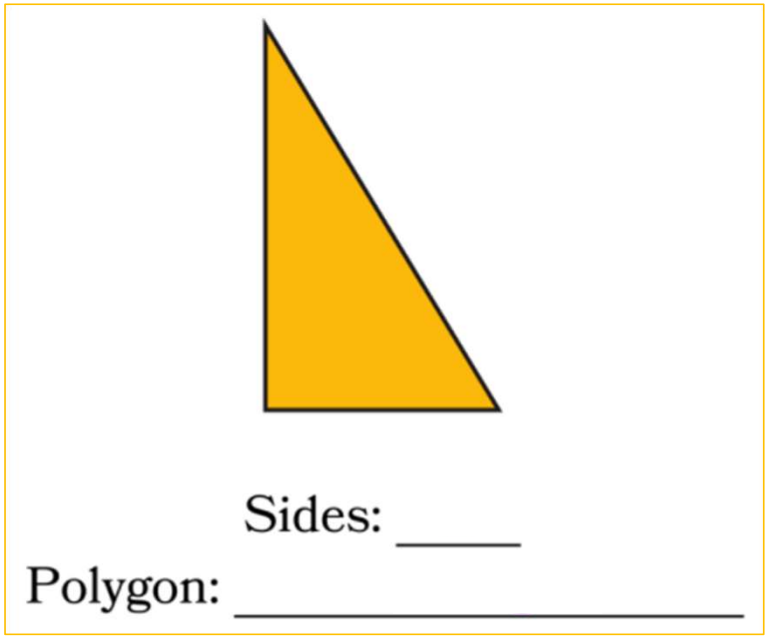
$$\begin{array}{r} 627 \\ \times \quad 35 \\ \hline \end{array}$$

$34 \times 781 =$ _____

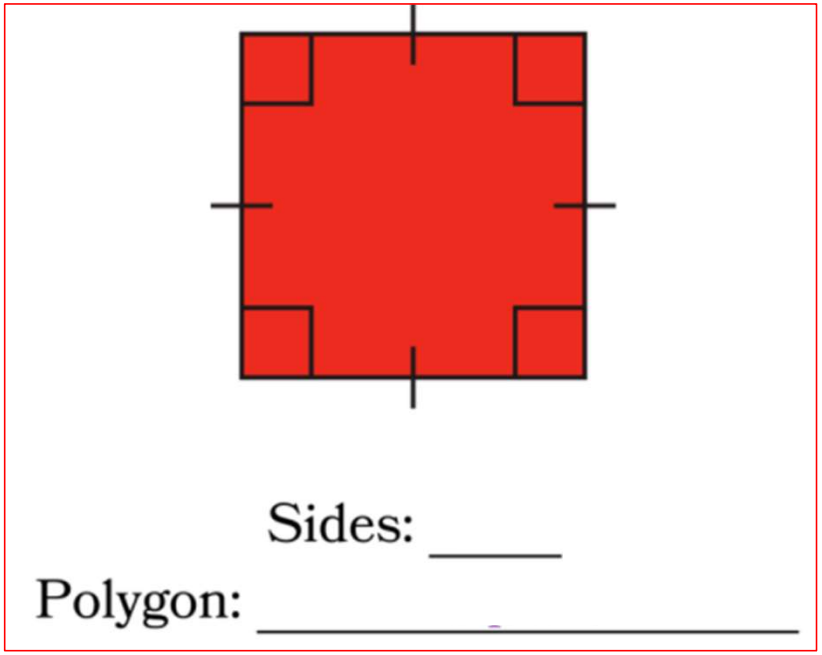
$$\begin{array}{r} 781 \\ \times \quad 34 \\ \hline \end{array}$$

FLUENCY (10-min) **Choral Response: Polygons and Sides**

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.



How many sides?
What is the name of the polygon?



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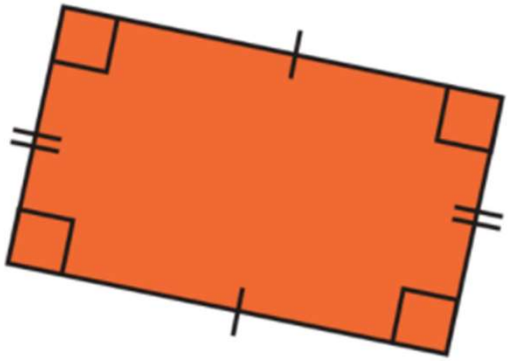
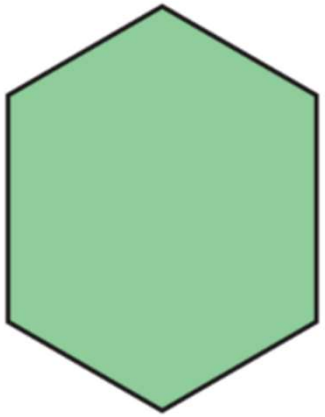


Sides: _____

Polygon: _____

How many sides?
What is the name of the polygon?



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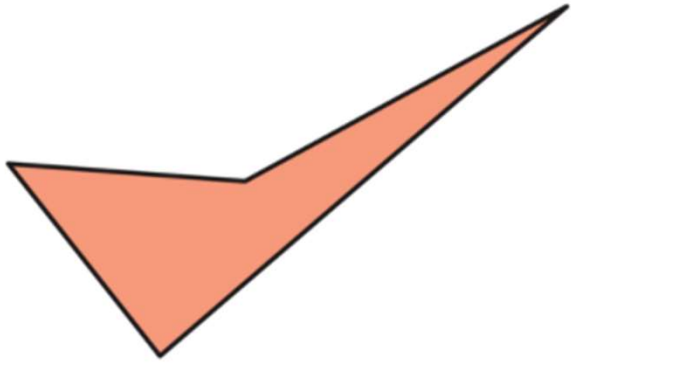
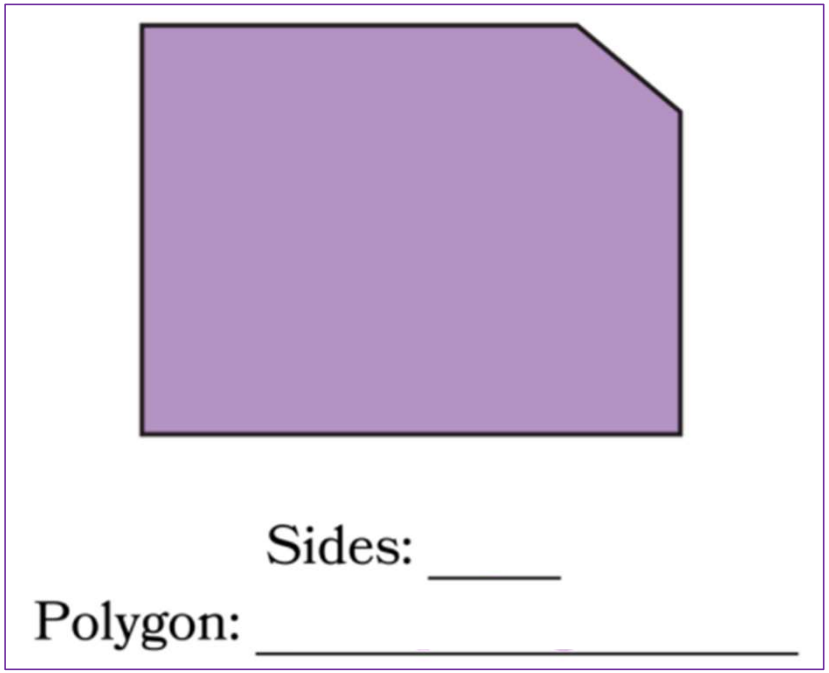


Sides: _____

Polygon: _____

How many sides?

What is the name of the polygon?



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How many sides?

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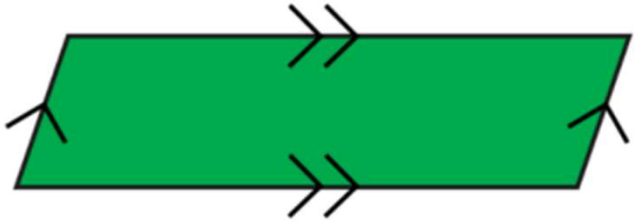

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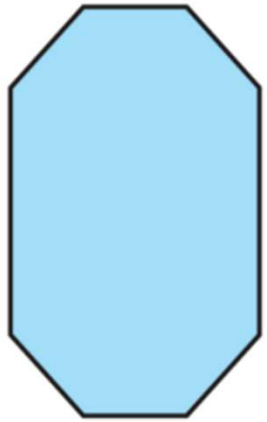

Sides: _____

Polygon: _____

How many sides?
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FLUENCY (10-min) **Choral Response: Polygons and Sides**

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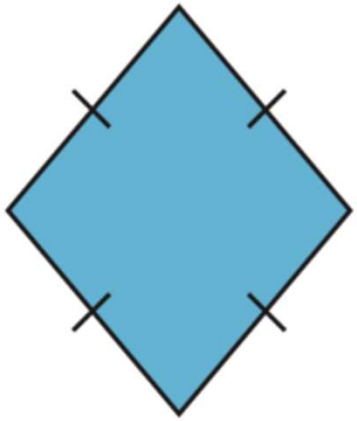
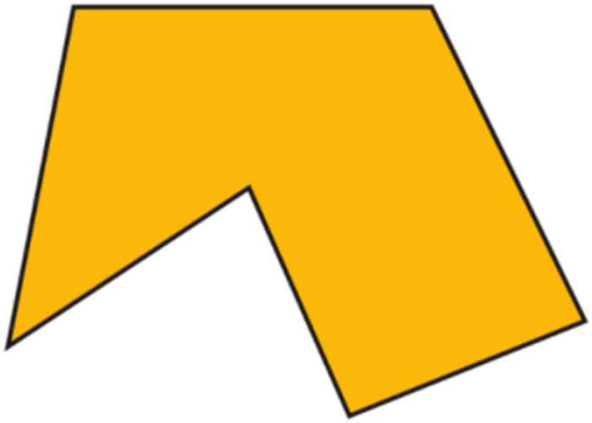


Sides: _____

Polygon: _____

How many sides?

What is the name of the polygon?



Sides: _____

Polygon: _____

How many sides?

What is the name of the polygon?

FLUENCY (10-min) **Choral Response: Divide Unit Fractions by Whole Numbers**

What is the quotient?
Raise your hand when you know.

$\frac{1}{2} \div 3 =$ _____

$\frac{1}{2} \div 4 =$ _____

$\frac{1}{3} \div 4 =$ _____

$\frac{1}{4} \div 3 =$ _____

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

$\frac{1}{6} \div 7 =$ _____

$\frac{1}{8} \div 8 =$ _____

$\frac{1}{9} \div 7 =$ _____

LAUNCH (5-min) **Solve a real-world problem involving division of decimal numbers.**

THINK-PAIR-SHARE:
Solve this problem any way you choose.

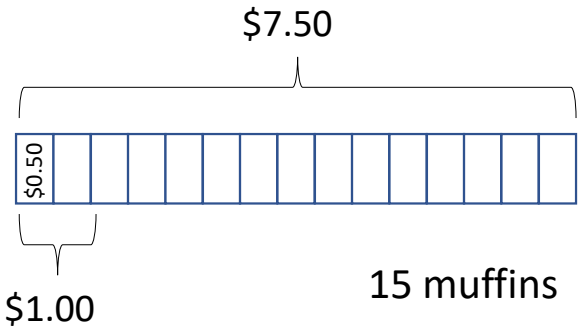
Lacy has $\$7.50$ to buy muffins at a bake sale.

Each muffin costs $\$0.50$.

How many muffins can Lacy buy?

Let's solve this problem several different ways.

Tape Diagram



Whole-Number Division

$\$7.50$ ➡ 750 cents

$\$0.50$ ➡ 50 cents

$750 \div 50$

$75 \div 5 = 15$

Long Division

$$50 \overline{)\,750}\quad 15$$

$-\ 50$

250

$-\ 250$

0

Multiplication

$0.50 \times 10 = 5.00$

$0.50 \times 5 = 2.50$

$10 + 5 = 15$

LEARN (35-min) **Divide Decimal Numbers by Using Unit Form**

What expression can we write to represent this problem?
Why?

Noah pours 1.2 liters of iced tea into glasses that each hold 0.4 liters.

How many glasses of iced tea does Noah fill?

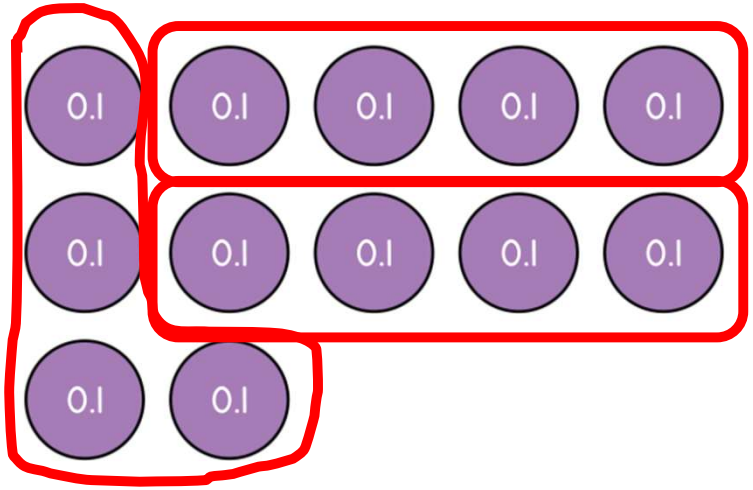
What do you notice about this division expression?
Both the dividend and the divisor are decimal numbers!

*Let's think about these numbers in **UNIT FORM:***

$1.2 \div 0.4$ **= 3**

12 tenths ÷ 4 tenths

We have 12 tenths, and we want to divide by 4 tenths. We can ask ourselves the same types of questions as we did when we divided numbers by 0.1 and 0.01. **How many groups of 4 tenths make 12 tenths?**



= 3 glasses

LEARN (35-min) **Divide Decimal Numbers by Using Unit Form**

LEARN book page 221.

*Let's use **UNIT FORM** to solve these problems.*

1. $0.72 \div 0.08 =$ **9**

72 hundredths ÷ 8 hundredths

72 ÷ 8

9

2. $25.2 \div 0.7 =$ **36**

252 tenths ÷ 7 tenths

252 ÷ 7

36

Long Division

$$
\begin{array}{r}
036 \\
7\overline{)\,252} \\
-\,21 \\
\hline
42 \\
-\,42 \\
\hline
0
\end{array}
$$

LEARN (35-min) **Rewrite the Divisor to Divide**

The work shown here by a student represents another way to solve the iced tea problem from earlier in the lesson.

What do you notice? Wonder?

$$1.2 \div 0.4 = 1.2 \div 0.1 \div 4$$
$$= 12 \div 4$$
$$= 3$$

The division of 0.4 is written as dividing by 0.1 and then dividing by 4.

Notice 1.2 ÷ 0.1 is like the problems we did in the previous lesson (1.2 ÷ 0.1 is the same as 1.2 x 10)

This method breaks the division into two parts. We know that 0.4 is 4 times as much as 0.1. So, we can divide first by 0.1 and then by 4.

LEARN (35-min) **Rewrite the Divisor to Divide**

LEARN book page 221.

3. Complete the equation to find $3.75 \div 0.75$.

$$3.75 \div 0.75 = 3.75 \div \underline{0.01} \div \underline{75}$$

$$= \underline{375} \div \underline{75}$$

$$= \underline{5}$$

We are dividing by 0.75. Should we divide by 0.1 or 0.01 first? ***0.01***

If we divide by 0.01 first, what do we still need to divide by? ***75***

$$.75 \overline{)\,3.75} \quad \Rightarrow \quad 75 \overline{)\,375}$$

X 100 **X 100**

LEARN (35-min) **Divide Decimal Numbers with Different Units**

There is an error in the student's work below. Can you identify the error?

$2.5 \div 0.05$

$2.5 \div 0.05 = 25$ tenths $\div 5$ hundredths

$= 5$

The dividend and the divisor have different units! So, we cannot divide 25 by 5 to get the answer,

$0.05\overline{)2.5}$ → $5\overline{)250}$

X 100 **X 100**

$250 \div 5 = \mathbf{50}$

LAND (10-min) **Exit Ticket**

Exit Ticket – PAGE 227

Small Group Time:
Problem Set Pages 223 - 226

Homework:
Page 151 APPLY BOOK

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Name _____ Date _____

Divide. Show your work.

1. $49.7 \div 0.7 =$ _____

2. $6.88 \div 0.08 =$ _____