Let's Do Some Math Estimation Exploration	What is the value of 0.42 ÷ 5? Record an estimate that is:

Too Low	About Right	Too High

Standards Unpacking		
Key	**Standard**	**Prerequisites/Vocabulary**
Put a box around the conceptual component of the standard. Underline the procedural/fluency component of the standard. Put a cloud around the application component of the standard.	**5.NBT.2 -** Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	What prior knowledge should my students have? What vocabulary/ notation should students know for this standard?
	5.NBT.7: Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method (algorithm) and explain the reasoning used.	What prior knowledge should my students have? What vocabulary/ notation should students know for this standard?

Directions: Complete this page with your teacher and partner.

1.

Ten Thousands	Thousands	Hundreds	Tens	Ones	●	Tenths	Hundredths	Thousandths
				1	●			
					●			

What patterns do you see when beginning with 1 and moving to 10,000?

_____

What happens to the zeros for each number value for the whole numbers?

_____

What patterns do you see when you begin with 1 and move to 0.001?

_____

What happens to the zeros for each number value for the decimals?

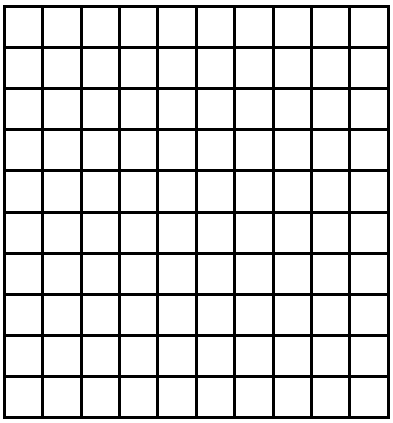
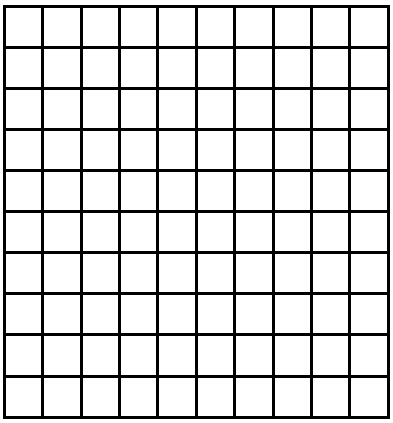
_____

2. Fill in the number values beginning with 5. Repeat the process you used for Problem 1.

Ten Thousands	Thousands	Hundreds	Tens	Ones	●	Tenths	Hundredths	Thousandths
				5	●			
					●			

Does the pattern hold true for any number? _____

Reasoning about the Quotient

$0.8\overline{)0.64}$		Conclusion:
$0.08\overline{)0.64}$		Conclusion:

Patterns with Dividing Decimals

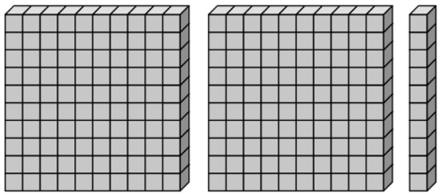
Multiplication	Division

Understanding Reasoning and Modeling Questions Use this sheet as a reflection tool to support the understanding of the evidence statement around the reasoning questions. After you engage/learn about the questions, use the tool to make notes around your take aways and implementation ideas.	
Current Unit Topics:	
	Evidence Statement for Reasoning
What Content Standards Are Addressed in This Evidence Statement from the Current Unit?	
Takeaways About the Statement – What Do Students Need to Be Able to Do	
What Should Be Evident in a Student Response	

Reasoning Question – 5.C.4 – 4

Used from: NJ Released Questions – 5.C.4-4 – 2019– Numbers and Base Ten Operations - 4106-M03478

The value 2.1 is shown by the base-ten model.



Part A

Explain how the value 2.1 is shown by the base-ten model.

Enter your explanation in the space provided.

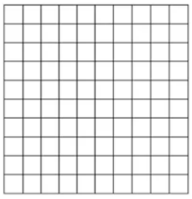
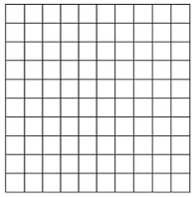
Part B

The model can be used to help solve the equation shown below.

$$2.1 \div 0.35 =$$

Explain how the model can be used to help solve the equation.
Include the solution to the equation in your explanation. Show your work.

Meaning of Tools

		
What is the relationship between each block?		
If the value of  is 1…		
…what is the value of  ?	…what is the value of  ?	
What is the relationship between each block?		

Directions: Complete the following SOLVE problem with your teacher. You will only complete the S step.

Evie is helping make costumes for the school play. The drama club is presenting a spring production in April. Mrs. Carson, the drama club advisor, asked Evie to buy 3.75 yards of ribbon for trimming some of the costumes. If the ribbon costs $4.00 per yard, what is the total cost of the ribbon?

S Underline the question.
This problem is asking me to find _____

_____.

Directions: Complete this page with your partner. Rewrite and line up the decimals to add.

1. 0.04 + 0.04 + 0.04 + 0.04 =

2. 0.7 + 0.7 + 0.7 + 0.7 =

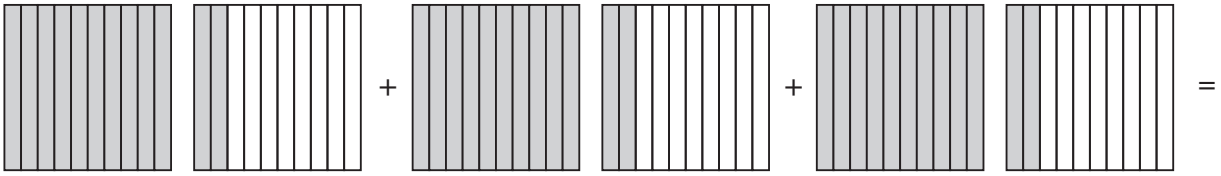
3. 0.35 + 0.35 + 0.35 =

4. 2.2 + 2.2 + 2.2=

Directions: Complete this page with your teacher and partner.

Look at the following model. What does each completely shaded model represent? _____

What does each partially shaded model represent?_____



What addition problem does the model represent?_____

What multiplication problem does the model represent? _____

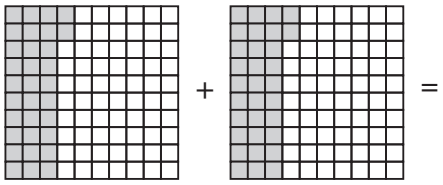
What does this number sentence mean? _____

Based on the models and the solution to the problem, what can you say about the position of the decimal point when multiplying a whole number by a tenth?_____

_____

_____

Now look at the following model.



What addition problem does the model represent?_____

What multiplication problem does the model represent?_____

What does this number sentence mean?_____

Based on the models and the solution to the problem, what can you say about the position of the decimal point when multiplying a whole number by a hundredth?__

_____

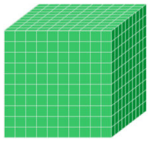
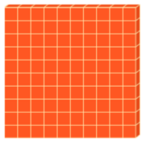
Estimation

We estimate to…	Let's Try

Multiplication as Scaling

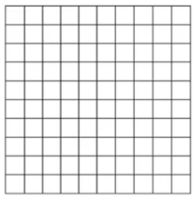
How many tons will 40 pallets weigh if one pallet weighs 0.34 tons?	
How many tons will 40 pallets weigh if one pallet weighs 1 ton?	
How many tons will 40 pallets weigh if one pallet weighs 3.4 tons?	

2 x 1.6
Meaning:

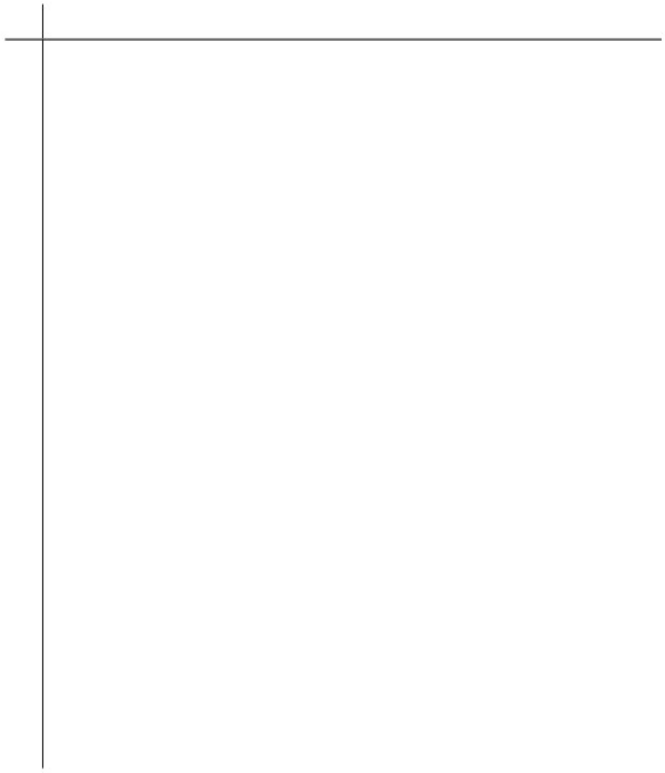
Tens (10)	Ones (1)	Tenths (0.1)	Hundredths (0.01)
			

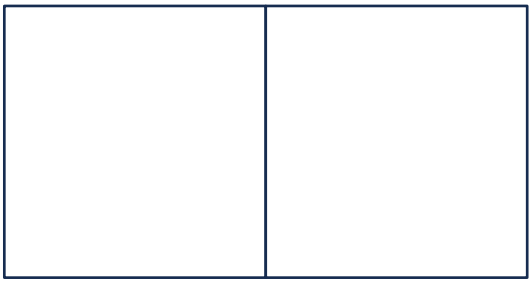
What types of problems can be solved using the place value mat?

Area Models

		
Notes:		

2 x 1.3

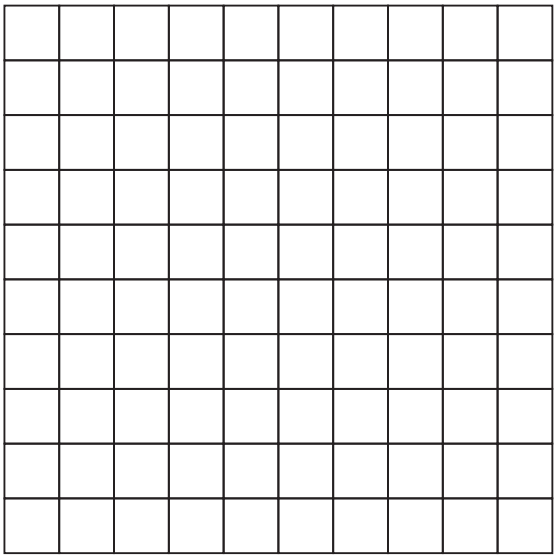




What types of problems can be solved using the area model?

Directions: Complete this page with your teacher and partner.

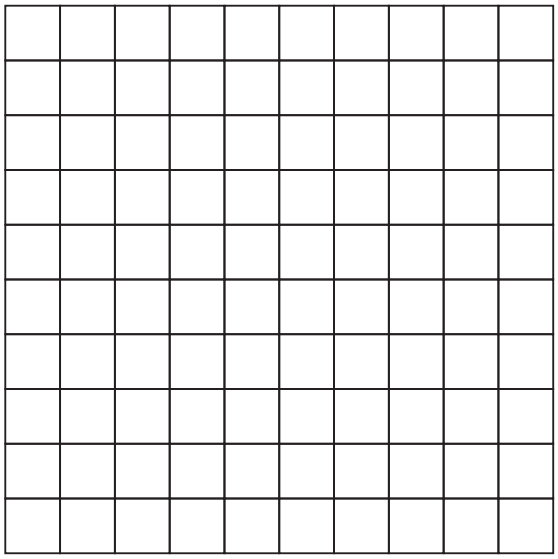
1.



_____

What does the expression mean?
_____ of a group of _____

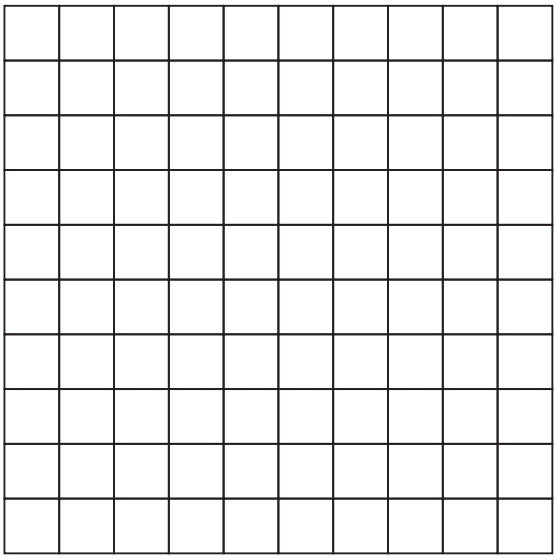
2.



0.7 • 0.2 =

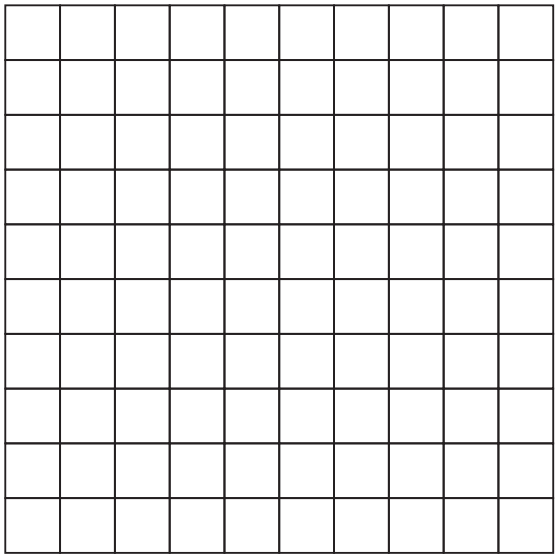
What does the expression mean?
_____ of a group of _____

3.



0.4 • 0.4 =
What does the expression mean?
_____ of a group of _____

4.



0.9 • 0.5 =
What does the expression mean?
_____ of a group of _____

Directions: Complete this page with your teacher and partner.

Use a calculator to find the product and fill in the rest of chart.					
Multiplicand	**Multiplier**	**Product**	**How many places did the decimal point move in the answer?**	**Which direction did the decimal point move?**	**Why?**
1. 1.6	1,000				
2. 1.6	100				
3. 1.6	10				
4. 1.6	1				
5. 1.6	0.1				

0.3 • 0.4 = 0.12

tenths • tenths = hundredths or 0.1 • 0.1 = 0.01

What place value is indicated to the right of the decimal in the factors?

What happened to the place value to the right of the decimal in the product?

Is the decimal in the product larger or smaller than either of the two factors?

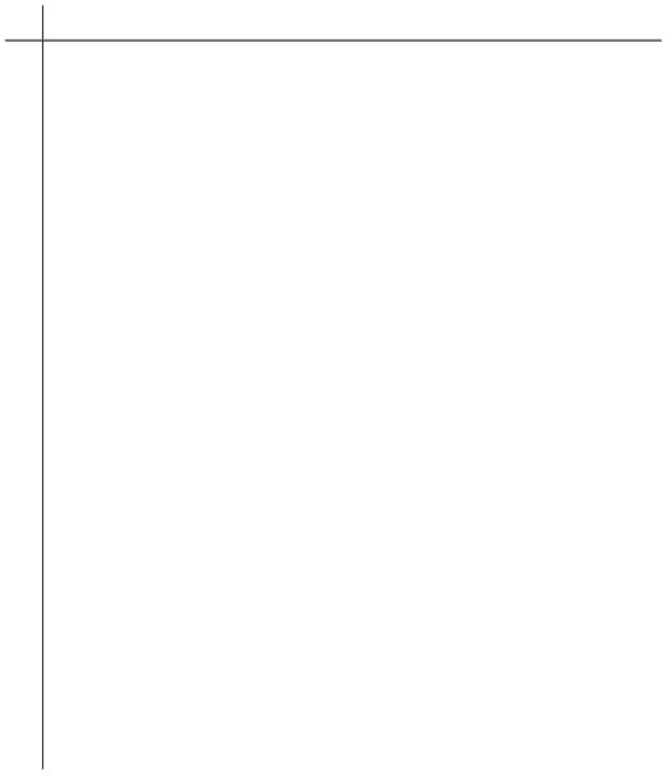
Why?

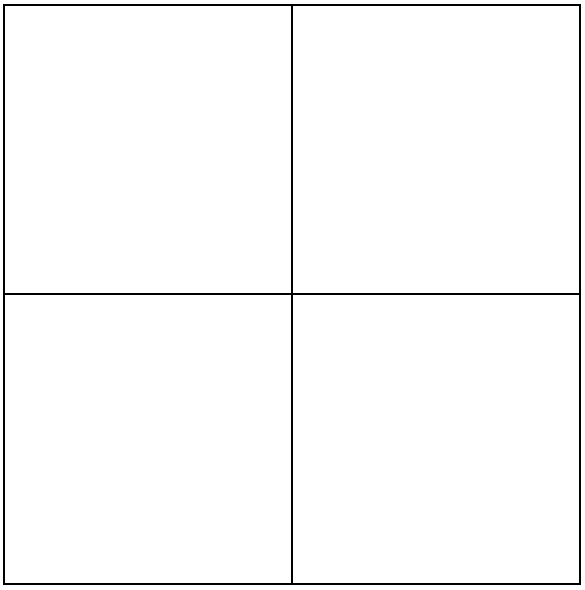
2.3 x 1.2

Magnitude of the number:

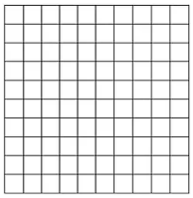
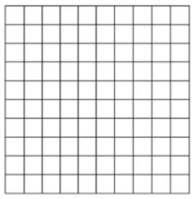
Estimate:

Number of decimal places:





Meaning of Tools

		
What is the relationship between each block?		
If the value of  is 1…		
…what is the value of  ?	…what is the value of  ?	
What is the relationship between each block?		

Meanings of Division

Anticipation Guide

What do you think about division?

Felix is dividing 322 by 12. He says the answer is going to be smaller than 322.
Do you agree with him?

When?	Do you agree or disagree?	Why?
Before		
After		

Faith is dividing 322 by 0.5. She says the answer is going to be smaller than 322.
Do you agree with her?

When?	Do you agree or disagree?	Why?
Before		
After		

DeAndre says that when you divide one number by another number, the answer is always smaller.
Do you agree with him?

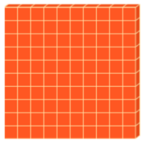
When?	Do you agree or disagree?	Why?
Before		
After		

Laura says that you should always divide the bigger number by the smaller number.
Do you agree with her?

When?	Do you agree or disagree?	Why?
Before		
After		

Marta has 11 one-dollar bills. She wants to share them equally among 5 children. How much would each child get?

Meaning:

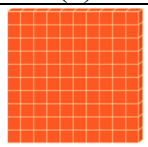
	Ones (1)	Tenths (0.1)	Hundredths (0.01)
			
Groups 1			
2			
3			
4			
5			

Quotient:

Meaning:

$3.72 ÷ 3

Meaning:

	Ones (1)	Tenths (0.1)	Hundredths (0.01)
			
Groups 1			
2			
3			
4			
5			

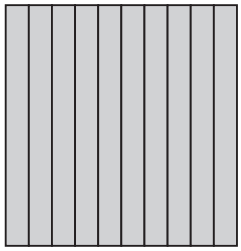
Quotient:

Meaning:

What types of problems can be solved using the place value mat?

Directions: Complete this page with your teacher and partner.

Look at the model at the right. What does it represent?



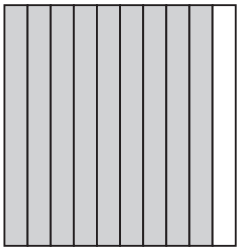
If you wanted to divide the model by 0.5, how could you represent the answer on the model?

How many groups of five tenths are in one whole?

How would this problem be written in numerical form with the quotient?

_____

If you wanted to work with 0.9 and divide it by 0.3, how many groups of 3 tenths would be separated?

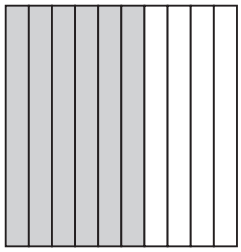


Write in numerical form with the quotient.

_____

Show how to model division by tenths in the following problems.

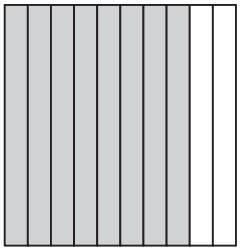
1.



0.6 ÷ 0.2 = _____

How many groups of 0.2 are in 0.6? _____

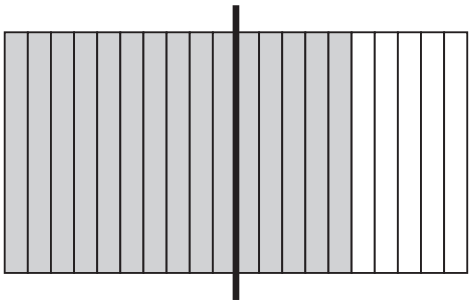
2.



0.8 ÷ 0.2 = _____

How many groups of 0.2 are in 0.8? _____

3.



1.5 ÷ 0.5 = _____

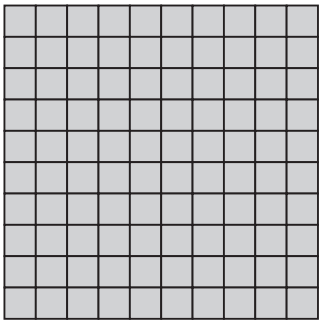
How many groups of 0.5 are in 1.5 _____

How does the quotient compare to the dividend in each of the problems?

_____

Directions: Complete this page with your teacher and partner.

Look at the model. What does it represent?



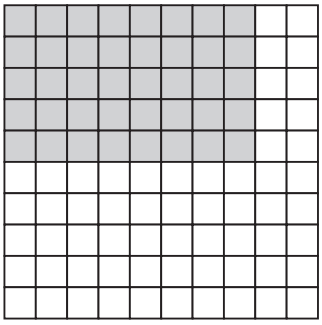
If you wanted to divide the model by 0.50, how could you represent the answer on the model?

How many groups of 50 hundredths are in one whole?

How would this problem be written in numerical form?

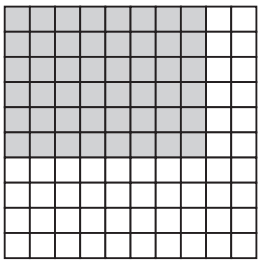
If you wanted to work with 0.40 and divide it by 0.08, how many groups of 8 hundredths would be separated?

Write in numerical form with the quotient.



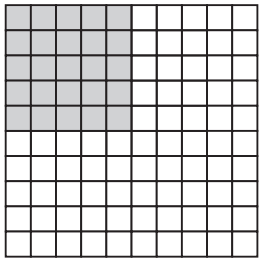
Show how to model division by hundredths in the following problems.

1.



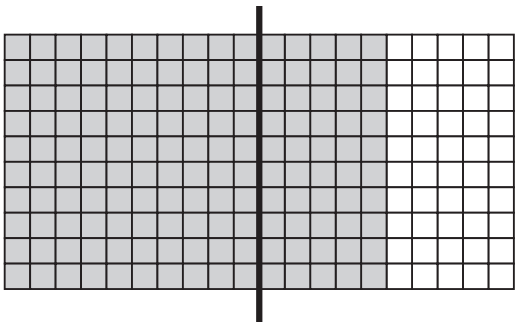
0.48 ÷ 0.08 = _____

2.



0.25 ÷ 0.05 = _____

3.

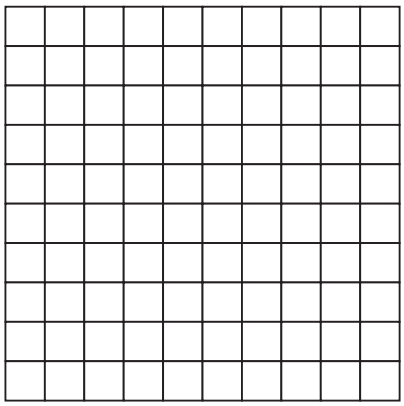


1.50 ÷ 0.50 = _____

How does the quotient compare to the dividend in each of the problems?

Directions: Complete this page with your partner.

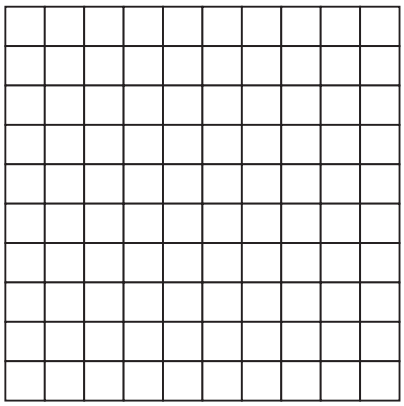
1.



0.24 ÷ 0.06 = ___

What does the problem mean?

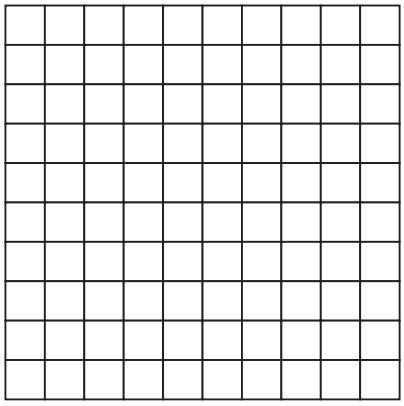
2.



0.6 ÷ 0.04 = ___

What does the problem mean?

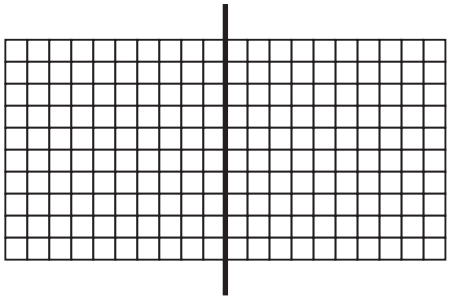
3.



0.75 ÷ 0.25 = _____

What does the problem mean?

4.



2.0 ÷ 0.40 = _____

What does the problem mean?