[Objective]
The student will multiply decimals to the thousandths place in mathematical and real-world situations.

[Prerequisite Skills]
Multiplying whole numbers, place value

[Materials]
Student pages **S149–S163**
Colored pencils – (1 red, 1 blue per student pair)
Calculators
Foldable from Lesson 13

[Essential Questions]
1. What happens to the decimal point when decimals are multiplied?
2. How is multiplying a decimal by a whole number like repeated addition?
3. How can you describe the product of two decimals less than 1?

[Words For Word Wall]
factor, product, decimal point, groups, items, array

[Grouping]
Cooperative Pairs (CP), Whole Group (WG), Individual (I)

[Levels of Teacher Support]
Modeling (M), Guided Practice (GP), Independent Practice (IP)

[Multiple Representations]
SOLVE, Verbal Description, Pictorial Representation, Graphic Organizer

[Warm-Up] (I, WG, IP) S149 (Answers on T311.)

- Have students turn to S149 in their books to begin the Warm-Up. Students will work with multiplying whole numbers. Monitor students to see if any of them need help during the Warm-Up. Have students complete the problems and then review the answers as a class. **{Verbal Description}**

[Homework]
Take time to go over the homework from the previous night.

[Lesson] [1 – 2 days (1 day = 80 minutes) - (M, GP, WG, CP, IP)]

SOLVE Problem (GP, WG) S150 (Answers on T312.)

Have students turn to S150 in their books. The first problem is a SOLVE problem. You are only going to complete the S step with students at this point. Tell students that during the lesson they will learn how to multiply decimals. They will use this knowledge to complete this SOLVE problem at the end of the lesson. **{SOLVE, Verbal Description, Graphic Organizer}**

Add Decimals (CP, IP, WG) S150 (Answers on T312.)

For Problems 1–4 on S150, have students work with a partner to determine the answers. Go over the answers as a class. **{Verbal Description}**

Multiplying Decimals with Pictorial Representations

(M, GP, WG, CP) S150, S151 (Answers on T312, T313.)

M, GP, CP, WG: Students will be creating pictorial representations of decimals and using those to model multiplication and the connection to repeated addition. Assign the roles of Partner A and Partner B. **{Verbal Description, Pictorial Representation, Graphic Organizer}**

MODELING

Multiplying Decimals with Pictorial Representations

Step 1: Have students look back at Problems 1–4 on S150.

- Partner A, what operation did we use to solve the problems? (repeated addition)
- Show students the following addition problem: 4 + 4 + 4.
- Partner B, what operation is represented here? (addition)
- Have student pairs discuss other possible strategies to find the solution to the problem of 4 + 4 + 4? (multiplication)
- Explain to students that just as with addition of the same whole numbers, repeated addition of the same decimals can be modeled as multiplication.

Step 2: Direct students' attention to the model at the top of S151.

- Partner A, what does each completely shaded grid represent? (1 whole) Record.
- Partner B, what does each partially shaded grid represent? (three tenths) Record.
- Have students discuss what addition expression the model represents. (1.3 + 1.3 + 1.3) Record.
- Can this be written as a multiplication problem? (Yes)
- Have students discuss how to write the repeated addition as multiplication. (3 • 1.3) Record.

- Ask students to determine the answer to the problem using the model (3 wholes and 9 tenths, or 3.9). Record the answer for the addition problem.
- Partner A, what is the meaning of the multiplication sentence? (3 groups of 1.3 items or 3 groups of 1 whole and 3 tenths items) Record.
- Have students record the product, 3.9.
- Have student pairs discuss the placement of the decimal in the product. (There is one place after the decimal point.)
- What pattern do you notice? When multiplying a decimal to tenths (like 1.3) by a whole number (like 3), (there is one decimal place in the product). Record.

Step 2: Have students look at the next model on the page.

- Have student pairs discuss how the problem that it represents is different from the problem they just completed (e.g., both addends are decimals, both addends are in hundredths).
- Partner A, what addition problem does the model represent? (0.20 + 0.20) Record.
- Partner B, determine the answer to the problem using the model. (40 hundredths, or 0.40) Record.
- Partner A, what multiplication expression might be written to represent the model? (2 • 0.20) Record.
- Partner B, what is the meaning of the multiplication expression? (2 groups of 0.20 or 2 groups of 2 hundredths) Record.
- Have students record the product, 0.40.
- What pattern do you notice? [When multiplying a decimal to hundredths (like 0.20) by a whole number (like 2), there are two decimal places in the product.] Record.

Multiplying a Decimal by a Decimal with a Pictorial Model

(M, GP, IP, CP, WG) S152, S153 (Answers on T314, T315.)

M, GP, CP, WG: Students will be creating pictorial representations of decimals and using those to model multiplication of two decimals. Be sure students know their designation as Partner A or Partner B. **{Verbal Description, Pictorial Representation, Graphic Organizer}**

MODELING

Multiplying a Decimal by a Decimal with a Pictorial Model

Step 1: Have student pairs discuss and model an **array** for multiplying two whole numbers.

- Tell students that they can also use an array to model multiplication of decimals.
- Have students look at the decimal multiplication Problem 1.
- Partner A, what is the multiplication problem? (0.2 • 0.6)
- Partner B, what is the meaning of the expression? (0.2 of a group of 0.6) Record.

Step 2: Have students discuss what the hundreds grid represents. (1 whole)

- Partner A, in multiplication, what does the first number represent? **(groups)**
- Partner B, how many groups do we have? (0.2)
- Have student pairs look at the hundreds chart and discuss how they could model shading 0.2 or two tenths. (There are ten rows in the hundreds chart, so we can mark two of the ten rows.)
- Model for students how to make a slash mark in each of the boxes to model two tenths using the blue pencil.

Step 3: Partner A, in multiplication, what does the second number represent? **(items)**

- Partner B, how many items do we have? (0.6)
- Have student pairs look at the hundreds chart and discuss how they could model shading 0.6 of sixth tenths. (There are ten columns in the hundreds chart, so we can mark six of the ten columns.)
- Model for students how to make a slash mark in each of the boxes to model six tenths using the red pencil.

Step 4: Have student pairs look at the grid that has been marked with the red and blue pencils.

- What do you notice about the spaces? (Some have only red marks, some have only blue marks, some are empty, and some have both colors.)
- Partner A, what do the squares with both colors represent? (the product or value of two tenths of a group of six tenths)
- Partner B, how many squares have both colors? (12)
- Partner A, how do we write that value based on the fact that it is 12 out of one hundred? (0.12) Record for the product below the model.
- Have student pairs discuss the placement of the decimal point in the product.
- What do you notice about the number of decimal places when we multiplied two values in the tenths? (There were two decimal places in the products. Tenths times tenths equals hundredths.)

Step 5: Model problems 2 – 4 using the same questioning strategies in Steps 1 – 4.

CP, IP, WG: Have students work with a partner to complete Problems 5 – 8 on S153 to model the decimal multiplication problems. They should write the meaning of the problem and be able to explain the reasoning and justification for placement of the decimal in each product. Review the answers as a whole group. **{Pictorial Representation, Verbal Description, Concrete Representation, Graphic Organizer}**

Patterns with Multiplying Decimals

(M, GP, IP, CP, IP) S154, S155 (Answers on T316, T317.)

M, GP, CP, WG: Students will be using patterns with powers of ten to multiply decimals. Each student pair should have a calculator for this activity. Be sure students know their designation as Partner A or Partner B. **{Verbal Description, Graphic Organizer}**

MODELING

Patterns with Multiplying Decimals

Step 1: Direct students' attention to the fourth row of the chart on S154, which shows 15.35 multiplied by 1.

- Have students multiply 15.35 by 1 on their calculators.
- Partner A, what is the **product**? (15.35) Record.
- Partner B, what do you notice about the decimal point in the product and the decimal point in the multiplicand? (They are in the same position.)
- Partner A, how many decimal places did the **decimal point** move in the product? (0) Record.
- Partner B, which direction did the decimal point move? (did not move) Record.
- Have student pairs discuss why the product was the same as the number we multiplied or the multiplicand. (Multiplying any number by 1 will not change the value.) Record.

Step 2: Next, direct students' attention to the third row of the chart, which shows 15.35 multiplied by 10.

- Have students multiply 15.35 and 10 on their calculators.
- Partner A, what is the product? (153.5) Record.
- Partner B, what do you notice about the decimal point in the product and the decimal point in the multiplicand? (The decimal point in the product has moved.)

- Partner A, how many decimal places did the decimal point move in the product? (1) Record.
- Partner B, which direction did the decimal point move? (to the right) Record.
- Have student pairs discuss why the product changed (sample response: Multiplying any number by 10 will change the value of the product and 15.35 times ten is 153.15.) Record.

Step 3: Work with students to complete the second and then first rows of the chart, using 100 and then 1,000 as multipliers.

Step 4: After completing the top 4 rows, direct students' attention to the fifth row of the chart on S154.

- Partner A, what is the multiplication fact? (15.35 multiplied by 0.1)
- Have students multiply 15.35 and 0.1 on their calculators.
- Partner A, what is the product? (1.535) Record.
- Partner B, what do you notice about the placement of the decimal point in the product. (It moved one place.) Record.
- Partner A, what direction did the decimal point move? (to the left) Record.
- Have student pairs discuss why the decimal point is in a different position in the product. (e.g., Multiplying by one tenth will make the answer smaller.)
- Complete the rest of the chart on S154 with students.

Step 5: Have students look at the multiplication problem below the chart.

- Partner A, what is the multiplication problem? (0.2 • 0.6 = 0.12)
- Partner B, what is the meaning of the problem? (2 tenths of a group of 6 tenths)
- Have students draw arrows in the equation while you model as shown below:

$$0.2 \;\overset{\curvearrowleft}{\cdot}\; 0.6 = 0.12$$

- Partner A, how many decimal places are in the value of 0.2? (1)
- Partner B, when we have a value with one decimal place, what is that value called? (tenths) Record.
- Partner A, how many decimal places are in the value of 0.6? (1)
- Partner B, when we have a value with one decimal place, what is that value called? (tenths) Record.
- Partner A, what is our product? (0.12)
- Partner B, how many place values are in our product? (2)
- Partner A, when we have a value with two decimal places, what is that value called? (The place value of the product is hundredths.) Record.
- Partner B, is the decimal in the product larger or smaller than either of the factors? Explain your answer. (smaller because you are multiplying parts of whole values.) Record.

Step 6: Direct students' attention to the expression 0.02 • 0.6 at the top of page S155. Point out that in the problem on S154, students multiplied 2 tenths and 6 tenths. Now they will multiply 2 hundredths and 6 tenths.

- Have students talk with a partner about how they think the product will change with the addition of another decimal place.

Step 7: Have students draw arrows in the equation while you model.

$$0.02 \bullet 0.6 = 0.012$$

- Have students compare the number of arrows on each side of the equals sign.
- Partner A, how many decimal places are in the two **factors**? (a total of three)
- Partner B, how many decimal places are in the product? (three)
- Have student pairs discuss Questions 1– 4 and then review the answers as a whole group.
- Partner A, what place value is indicated to the right of the decimal points in the factors? (hundredths, tenths) Record.
- Partner B, what happened to the place value to the right of the decimal point in the product? (The place value of the product is thousandths.) Record.
- Partner A, compare the decimal places in the product to the decimal places in the number sentence. (There are a total of 3 places to the right of the decimal point in the problem, and the product has 3 decimal values to the right of the decimal point.) Record.
- Partner B, what is a rule for multiplying decimals based on the previous problems? (Count the number of decimal places to the right of the decimal point in the factors and match that number in the product.) Record.

Multiply Decimals without Models (M, GP, IP, WG, CP) S156 (Answers on T318.)

M, GP, CP, WG: Students will be apply what they have learned about multiplying decimals to problems without models. Be sure students know their designation as Partner A or Partner B. **{Verbal Description}**

MODELING

Multiplying Decimals without Models

Step 1: Model how to rewrite Problem 1 on S155 vertically.

- Have students multiply the values as if they are whole numbers.
- Partner A, what is the product of the values? (64)

$$\begin{array}{r} 0.32 \\ \times\ \ 0.2 \\ \hline 64 \end{array}$$

Step 2: Partner A, how many decimal places are in the first factor? (2)

- Partner B, how many decimal places are in the second factor? (1)
- Have student pairs discuss the pattern of the decimal places in the product.
- Partner A, what is the guideline we use to determine where to place the decimal point in the product? (The number of decimal places in the product should be the same as the total number of decimal places in the factors.)
- Partner B, how many decimal places will there be in the product? (3)
- Partner A, what is the product? (0.064) Record.

$$\begin{array}{r} 0.32 \\ \times\ \ 0.2 \\ \hline 0.064 \end{array}$$

Step 3: Repeat the steps above to model Problem 2 on page S156.

CP, IP, WG: Have students work with a partner to complete Problems 3 – 8 on S156. Students should be able to explain and justify the product for each of the problems. Review the answers as a whole group. **{Verbal Description, Graphic Organizer}**

Decimal Foldable - Multiplication (WG, GP)

Have students get out the foldable they started in the previous lesson (Add and Subtract Decimals). Use the following activity to have students continue adding to the foldable for multiplication of decimals.

MODELING

Decimal Foldable - Multiplication

Step 1: Have students label the top of the third column "Multiply Decimals."

Step 2: Ask students to talk with a partner to determine the steps they used when multiplying decimals. Have students record the steps on their foldable.

SOLVE Problem

(WG, GP) S157 (Answers on T319.)

Remind students that the SOLVE problem is the same one from the beginning of the lesson. Complete the SOLVE problem with your students. Ask them for possible connections from the SOLVE problem to the lesson. (Students will work with decimal multiplication to solve a problem.) **{SOLVE, Verbal Description, Graphic Organizer}**

Real-World Application with Decimal Multiplication

(CP, IP, WG) S158, S159, S160, S161 (Answers on T320, T321, T322, T323.)

This activity includes four SOLVE problems that give students the opportunity to practice adding integers with Real-World Applications. **{SOLVE, Graphic Organizer, Verbal Description}**

There are a variety of ways to complete these problems. Here are a few suggestions which are alternatives to having students complete all 4 problems in student pairs:

- Have students work in groups of 4 or 5 and assign them one of the SOLVE problems to complete as a group. Students can then transfer answers to chart paper and present to the whole group.
- Have students work in 4 different groups. Post each SOLVE problem on a chart around the room. Students can start at one poster and complete the S step. After a few minutes, have student groups move to the next poster, read the S step, and then complete the O step. After a few minutes, have students move to the next poster, read the S and O steps, and complete the L step. Continue with this procedure until student groups have returned to their original problem. They can also present their problem to the whole group.
- Have a copy of one of the SOLVE problems at each table or group (4 groups). Have students complete the S Step and then pass the problem on to the next group when you give a signal. Students will continue this process until they get back their original problem.
- Pass Back Activity: This activity works well if students are sitting in rows or it can be adapted to a group. Each row or group is given a SOLVE problem. The first student completes the S Step and then passes the paper back or to the next student. The second student checks the S Step and marks it with initials and then completes the O Step. The SOLVE problem is then passed to the next person who checks and initials the S and O step and completes the L step. This continues until the problem goes back to the first person who reviews all steps. Student groups can then share their responses as a whole group.

If time permits... **(CP, IP) S162 (Answers on T324.)**
Have students complete Problems 1–10 on page S162.

[Closure]
To wrap up the lesson, go back to the essential questions and discuss them with students.

- What happens to the decimal point when decimals are multiplied?
  (The number of decimal places in the factors is equal to the number of decimal places in the product.
- How is multiplying a decimal by a whole number like repeated addition?
  (It is a shorter way to add decimals.)
- How can you describe the product of two decimals less than 1?
  (The decimal value in the product is smaller than either of the two decimal factors.)

[Homework] Assign S163 for homework. (Answers on T325.)

[Quiz Answers] T326
1. **A** 2. **B** 3. **C** 4. **D** 5. **A** 6. **C** 7. **B** 8. **B** 9. **D** 10. **C**

The quiz can be used at any time as extra homework or to see how students progress on multiplication involving decimals in mathematical and real-world situations.

Here is the key to **S149.**

Warm–Up

Directions: Solve the following problems.

1. 22 • 4 = **88**

2. 52 • 2 = **104**

3. 49 • 10 = **490**

4. 35 • 20 = **700**

5. 75 • 10 = **750**

6. 200 • 20 = **4,000**

Here is the key to **S150.**

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

Tadarius and Rocko are purchasing a new basketball. They plan to play on the school team and need to practice. The cost of the basketball is $15.50, but it is on sale for 0.75 of the cost. How much is the basketball, rounded to the nearest penny?

S Underline the question.
This problem is asking me to find **the sale price of the basketball rounded to the nearest penny.**

Directions: Complete this page with your teacher and partner.

1. 0.034 + 0.034 + 0.034 + 0.034 =

0.136

2. 0.9 + 0.9 + 0.9 + 0.9 =

3.6

3. 0.25 + 0.25 + 0.25 =

0.75

4. 1.3 + 1.3 + 1.3 =

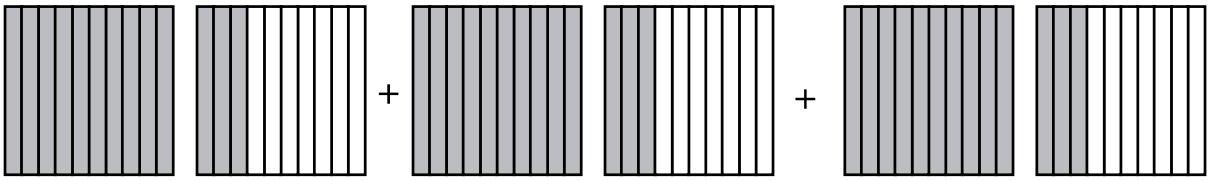
3.9

Here is the key to **S151.**

Directions: Complete this page with your teacher and partner.

Look at the following model. What does each completely shaded grid represent? **1 whole**

What does each partially shaded grid represent? **three-tenths**



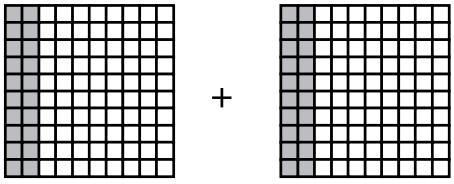
What addition problem does the model represent? **1.3 + 1.3 + 1.3 = 3.9**

What multiplication problem does the model represent? **3 ● 1.3 = 3.9**

What does this number sentence mean? **three groups of one and three-tenths**

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 by a tenth?
There should be one decimal place to the right of the decimal.

Now, look at the following model.



What addition problem does the model represent? **0.20 + 0.20 = 0.40**

What multiplication problem does the model represent? **2 ● 0.20 = 0.40**

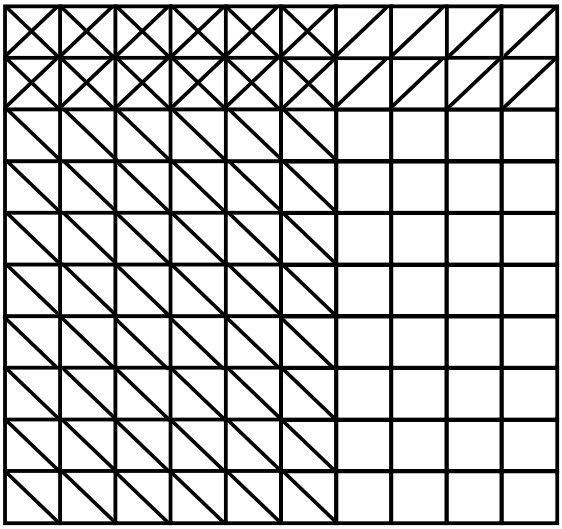
What does this number sentence mean?
two groups of twenty-hundredths

Based on the models and the solution to the problem, what can you say about the decimal point position when multiplying whole numbers by hundredths?
There should be two decimal places to the right of the decimal to show hundredths.

Here is the key to **S152.**

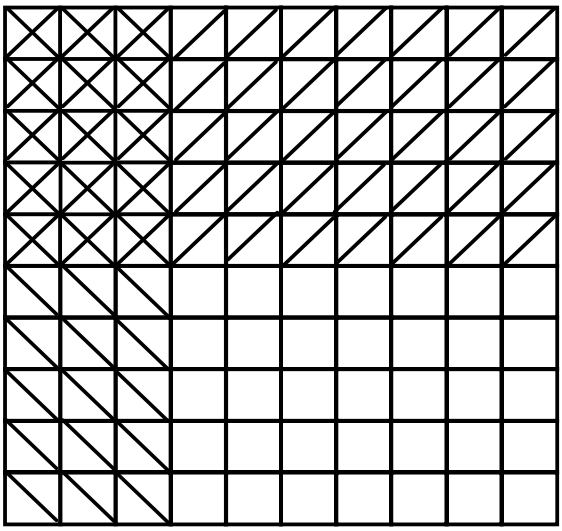
Directions: Complete this page with your teacher and partner.

1.



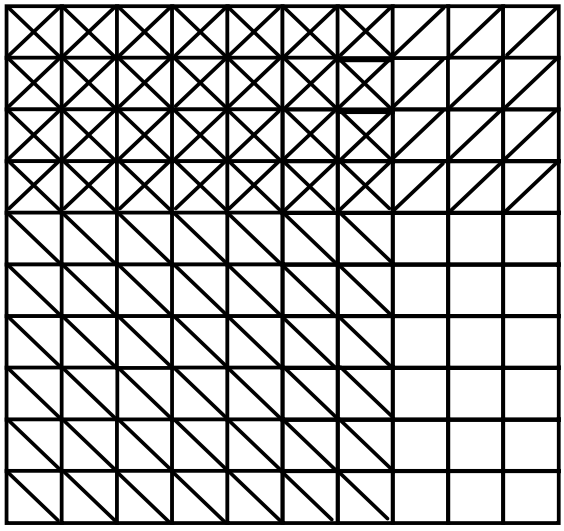
0.2 • 0.6 = **0.12**
What does the expression mean?
0.2 of a group of **0.6**

2.



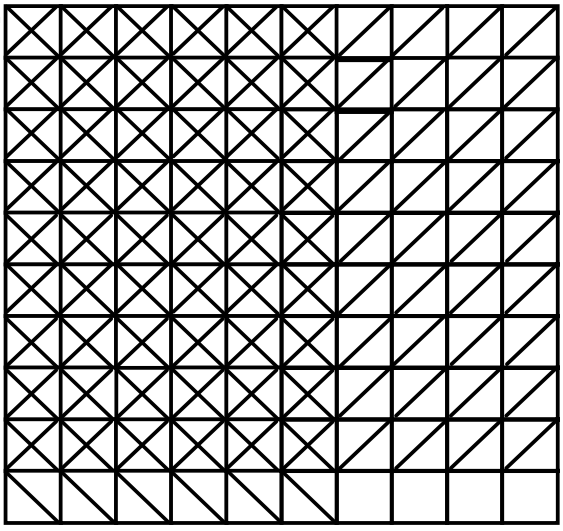
0.5 • 0.3 = **0.15**
What does the expression mean?
0.5 of a group of **0.3**

3.



0.4 • 0.7 = **0.28**
What does the expression mean?
0.4 of a group of **0.7**

4.

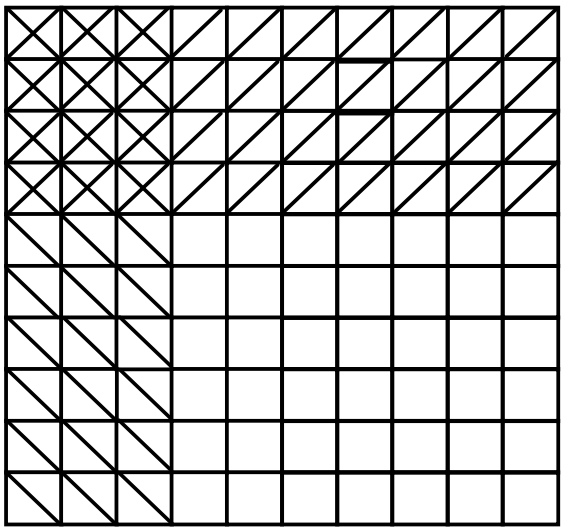


0.9 • 0.6 = **0.54**
What does the expression mean?
0.9 of a group of **0.6**

Here is the key to **S153.**

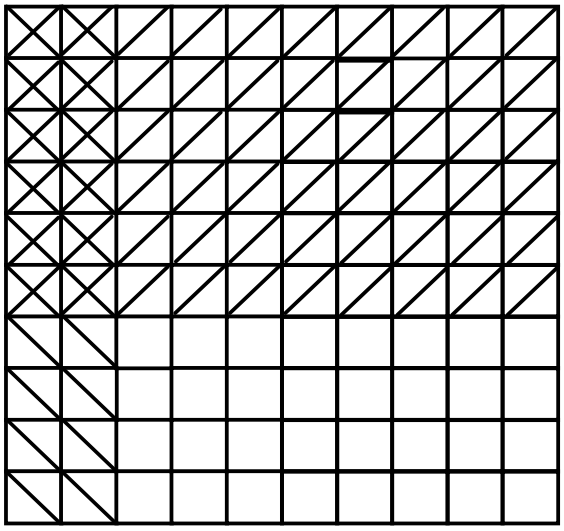
Directions: Complete this page with your partner.

5.



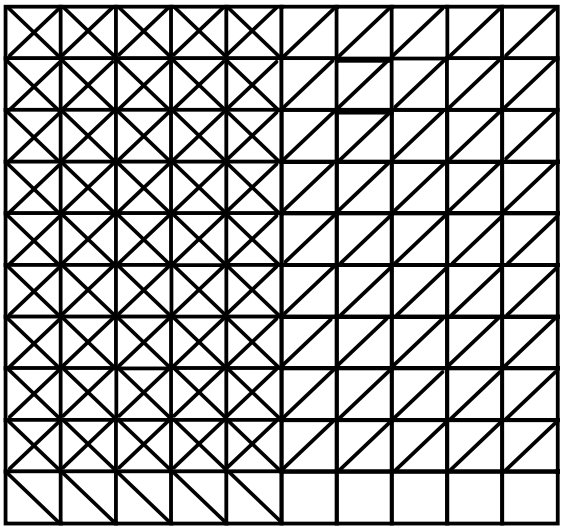
0.4 • 0.3 = **0.12**
What does the expression mean?
0.4 of a group of **0.3**

6.



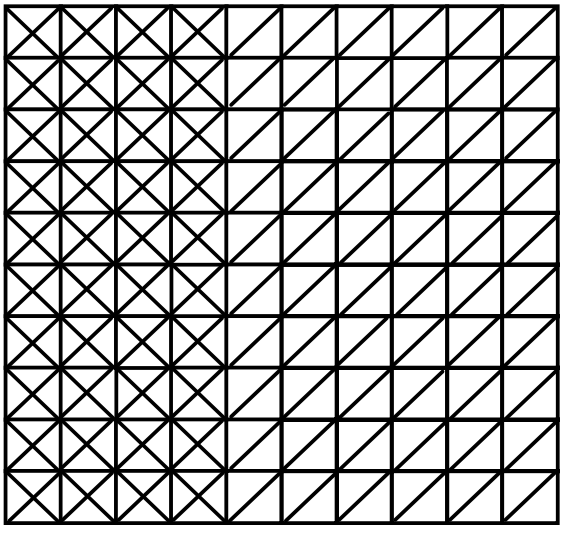
0.6 • 0.2 = **0.12**
What does the expression mean?
0.6 of a group of **0.2**

7.



0.9 • 0.5 = **0.45**
What does the expression mean?
0.9 of a group of **0.5**

8.



1.0 • 0.4 = **0.40**
What does the expression mean?
1.0 of a group of **0.4**

Here is the key to **S154.**

Directions: Complete this page with your teacher and partner.

Use a calculator to find the product and fill in the rest of the chart.					
Multiplicand	**Multiplier**	**Product**	**How many places did the decimal point move in the answer?**	**Which direction did the decimal point move?**	**Why?**
15.35	1,000	**15,350**	**3**	**Right**	***Answers will vary**
15.35	100	**1,535**	**2**	**Right**	***Answers will vary**
15.35	10	**153.5**	**1**	**Right**	***Answers will vary**
15.35	1	**15.35**	**0**	**Did not move**	**Multiplying any value by 1 does not change the value.**
15.35	0.1	**1.535**	**1**	**Left**	***Answers will vary**
15.35	0.01	**0.1535**	**2**	**Left**	***Answers will vary**
15.35	0.001	**0.01535**	**3**	**Left**	***Answers will vary**

0.2 • 0.6 = 0.12 **tenths • tenths** = **hundredths** or 0.1 • 0.1 = 0.01

What place value is indicated to the right of the decimal point in the numbers?
tenths
What happened to the place value to the right of the decimal point in the product?
The place value of the product is hundredths.
Is the decimal in the product larger or smaller than either of the two factors? Why?
smaller because you are multiplying parts of wholes

Here is the key to **S155.**

Directions: Complete this page with your teacher and partner.

Look at the following problem. Compare it to the problem on the previous page.

$0.02 \bullet 0.6 = 0.012$ hundredths • tenths = thousandths

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

hundredths, tenths

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

The place value of the product is thousandths.

3. Compare the decimal places in the product to the decimal places in the number sentence.

There are a total of 3 places to the right of the decimal point in the problem, and the product has 3 decimal values to the right of the decimal point.

4. What is a rule for multiplying decimals based on the previous problems?

Count the number of decimal places to the right of the decimal point in the factors and match that number in the product.

Here is the key to **S156.**

Directions: Solve the following problems.

1. 0.32 • 0.2 =

0.32
• **0.2**
0.064

2. 3.8 • 0.7 =

3.8
• **0.7**
2.66

3. 2.5 • 0.09 =

2.5
• **0.09**
0.225

4. 8.3 • 1.3 =

8.3
• **1.3**
249
830
10.79

5. 0.29 • 2.3 =

0.29
• **2.3**
87
580
0.667

6. 0.3 • 2.3 =

0.3
• **2.3**
09
60
0.69

7. 3.5 • 0.5 =

3.5
• **0.5**
1.75

8. 0.54 • 0.2 =

0.54
• **0.2**
0.108

Here is the key to **S157.**

Directions: Complete the following SOLVE problem with your teacher.

~~Tadarius and Rocko are purchasing a new basketball.~~ | ~~They plan to play on the school team and need to practice.~~ | The cost of the basketball is $15.50, | but it is on sale for 0.75 of the cost. | How much is the basketball, rounded to the nearest penny?

S Underline the question.

This problem is asking me to find **the sale price of the basketball, rounded to the nearest penny.**

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

Cost of basketball is $15.50, on sale for 0.75 of cost

L Write in words what your plan of action will be.

Multiply the cost of the basketball by the decimal number which represents the discounted price.

Choose an operation or operations. **Multiplication**

V Estimate your answer. **About $12.00**

Carry out your plan.

$15.50 • 0.75 = $11.6250

Rounded to the nearest penny: $11.63.

E Does your answer make sense? (Compare your answer to the question.)

Yes, because we are looking for the cost of the basketball.

Is your answer reasonable? (Compare your answer to the estimate.)

Yes, because it is close to our estimate of about $12.00.

Is your answer accurate? (Check your work.) **Yes**

Write your answer in a complete sentence.

The sale price of the basketball is $11.63, rounded to the nearest penny.

Here is the key to **S158.**

Directions: Complete the following SOLVE problem.

All school supplies at a local office supply store are 30% off. | Michael purchased a pack of pencils that cost $4.21. | What is the amount of money that will be taken off the cost of the pack of pencils? (Round to the nearest cent.)

S Underline the question.

This problem is asking me to find **the amount of money of the discount.**

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts. **pencils cost $4.21; discount is 30%**

L Write in words what your plan of action will be. **Write the discount as a decimal. Multiply the cost of the pencils and the discount.**

Choose an operation or operations. **Multiplication**

V Estimate your answer. **About $1.50**

Carry out your plan.

4.21 • 0.3 = 1.263 = $1.26

E Does your answer make sense? (Compare your answer to the question.) **Yes, because we found the amount of money of the discount.**

Is your answer reasonable? (Compare your answer to the estimate.) **Yes, because it is close to my estimate of about $1.50.**

Is your answer accurate? (Check your work.) **Yes**

Write your answer in a complete sentence. **The amount of the discount of the pencils is $1.26.**

Here is the key to **S159.**

Directions: Complete the following SOLVE problem.

A piece of candy weighs 0.23 ounces. | How many ounces would 6 pieces of candy weigh?

S Underline the question.

This problem is asking me to find **the weight of 6 pieces of candy.**

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts. **one piece of candy weighs 0.23 ounces, 6 pieces of candy.**

L Write in words what your plan of action will be. **Multiply the weight of one candy and the number of candies.**

Choose an operation or operations. **Multiplication**

V Estimate your answer. **About 1.3 ounces**

Carry out your plan.

0.23 • 6 = 1.38 ounces

E Does your answer make sense? (Compare your answer to the question.) **Yes, we found the weight of the six candies.**

Is your answer reasonable? (Compare your answer to the estimate.) **Yes, because my answer is close to my estimate of about 1.3 ounces.**

Is your answer accurate? (Check your work.) **Yes**

Write your answer in a complete sentence. **Six pieces of candy would weigh 1.38 ounces.**

Here is the key to **S160.**

Directions: Complete the following SOLVE problem.

Kenny needs 32 index cards to complete a science project. | Each card costs $0.30. | How much money will Kenny pay for 32 index cards?

S Underline the question.

This problem is asking me to find **the cost of 32 index cards.**

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts. **buys 32 index cards, each card costs $0.30**

L Write in words what your plan of action will be. **Multiply the cost of each card times the number of cards.**

Choose an operation or operations. **Multiplication**

V Estimate your answer. **About $9.00**

Carry out your plan.

$0.30 • 32 = $9.60

E Does your answer make sense? (Compare your answer to the question.) **Yes, because I found the cost of 32 index cards.**

Is your answer reasonable? (Compare your answer to the estimate.) **Yes, because my answer is close to my estimate of about $9.00.**

Is your answer accurate? (Check your work.) **Yes**

Write your answer in a complete sentence. **The cost of 32 index cards is $9.60.**

Here is the key to **S161.**

Directions: Complete the following SOLVE problem.

~~Mr. Thompson is remodeling his kitchen.~~ | ~~He is going to install tile on his kitchen floor.~~ |The area of his floor is 128 square feet.| If the tile costs $1.23 per square foot,| how much will it cost to tile the floor?

S Underline the question.

This problem is asking me to find **the cost of the tiles for the kitchen floor.**

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts. **area of the floor is 128 square feet, tile cost is $1.23 per square foot**

L Write in words what your plan of action will be. **Multiply the total square feet of the floor by the cost of the tile per square foot**

Choose an operation or operations. **Multiplication**

V Estimate your answer. **About $150**

Carry out your plan.

128 • 1.23 = $157.44

E Does your answer make sense? (Compare your answer to the question.) **Yes, because I found the cost of the tile for the kitchen.**

Is your answer reasonable? (Compare your answer to the estimate.) **Yes, because my answer is close to my estimate of about $150.00.**

Is your answer accurate? (Check your work.) **Yes**

Write your answer in a complete sentence. **The cost of the tile for the kitchen is $157.44.**

Here is the key to **S162.**

Directions: Solve the following problems.

1. 0.3 • 0.6 =

0.18

2. 0.3 • 0.8 =

0.24

3. 3.8 • 4.02 =

15.276

4. 8.8 • 9.2 =

80.96

5. 9.3 • 1.02 =

9.486

6. 0.8 • 0.06 =

0.048

7. 4.2 • 3.04 =

12.768

8. 0.12 • 3.4 =

0.408

9. 0.54 • 5.4 =

2.916

10. 3.03 • 0.8 =

2.424

Here is the key to **S163.**

Homework

Name _____ **Date** _____

Directions: Solve the following problems.

1. 0.3 • 0.5 =

0.15

2. 0.19 • 1.5 =

0.285

3. 5.03 • 0.6 =

3.018

4. 0.19 • 0.6 =

0.114

5. 0.02 • 0.8 =

0.016

6. 1.5 • 0.28 =

0.42

7. 0.5 • 0.9 =

0.45

8. 0.8 • 0.92 =

0.736

9. 0.03 • 1.5 =

0.045

10. 0.53 • 0.8 =

0.424

Name _____ Date _____

Quiz

1. 0.3 • 1.5 =

A. 0.45
B. 4.5
C. 45
D. 450

2. 3.04 • 0.2 =

A. 0.0608
B. 0.608
C. 6.08
D. 60.8

3. 8.2 • 4.1 =

A. 0.03362
B. 3.362
C. 33.62
D. 336.2

4. 0.19 • 2.3 =

A. 0.000437
B. 0.00437
C. 0.0437
D. 0.437

5. 2.59 • 0.3 =

A. 0.777
B. 7.77
C. 77.7
D. 777

6. 0.25 • 0.7 =

A. 0.00175
B. 0.0175
C. 0.175
D. 1.75

7. 0.7 • 0.26 =

A. 0.0182
B. 0.182
C. 1.82
D. 18.2

8. 0.3 • 0.6 =

A. 0.018
B. 0.18
C. 1.8
D. 18

9. 5.2 • 0.02 =

A. 0.000104
B. 0.00104
C. 0.0104
D. 0.104

10. 0.08 • 0.6 =

A. 0.00048
B. 0.0048
C. 0.048
D. 0.48