Module 2 Lesson 11

Multiply decimal fractions by multi-digit whole numbers through conversion to a whole number problem and reasoning about the placement of the decimal.

Common Core Standards

- 5.OA.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.

- 5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.

Learning Targets

- I can multiply decimal fractions by multi-digit whole numbers through conversion to a whole number problem and reasoning about the placement of the decimal.

Sprint A

A

Correct _____

Multiply.

1	3 x 3 =		23	8 x 5 =	
2	0.3 x 3 =		24	0.8 x 5 =	
3	0.03 x 3 =		25	0.08 x 5 =	
4	3 x 2 =		26	0.06 x 5 =	
5	0.3 x 2 =		27	0.06 x 3 =	
6	0.03 x 2 =		28	0.6 x 5 =	
7	2 x 2 =		29	0.06 x 2 =	
8	0.2 x 2 =		30	0.06 x 7 =	
9	0.02 x 2 =		31	0.9 x 6 =	
10	5 x 3 =		32	0.06 x 9 =	
11	0.5 x 3 =		33	0.09 x 9 =	
12	0.05 x 3 =		34	0.8 x 8 =	
13	0.04 x 3 =		35	0.07 x 7 =	
14	0.4 x 3 =		36	0.6 x 6 =	
15	4 x 3 =		37	0.05 x 5 =	

5	0.3 x 2 =		27	0.06 x 3 =	
6	0.03 x 2 =		28	0.6 x 5 =	
7	2 x 2 =		29	0.06 x 2 =	
8	0.2 x 2 =		30	0.06 x 7 =	
9	0.02 x 2 =		31	0.9 x 6 =	
10	5 x 3 =		32	0.06 x 9 =	
11	0.5 x 3 =		33	0.09 x 9 =	
12	0.05 x 3 =		34	0.8 x 8 =	
13	0.04 x 3 =		35	0.07 x 7 =	
14	0.4 x 3 =		36	0.6 x 6 =	
15	4 x 3 =		37	0.05 x 5 =	
16	5 x 5 =		38	0.6 x 8 =	
17	0.5 x 5 =		39	0.07 x 9 =	
18	0.05 x 5 =		40	0.8 x 3 =	
19	7 x 4 =		41	0.09 x 6 =	
20	0.7 x 4 =		42	0.5 x 7 =	
21	0.07 x 4 =		43	0.12 x 4 =	
22	0.9 x 4 =		44	0.12 x 9 =	

Sprint B

B Improvement _____ # Correct _____

Multiply.

1	2 x 2 =		23	6 x 5 =	
2	0.2 x 2 =		24	0.6 x 5 =	
3	0.02 x 2 =		25	0.06 x 5 =	
4	4 x 2 =		26	0.08 x 5 =	
5	0.4 x 2 =		27	0.08 x 3 =	
6	0.04 x 2 =		28	0.8 x 5 =	
7	3 x 3 =		29	0.08 x 2 =	
8	0.3 x 3 =		30	0.08 x 7 =	
9	0.03 x 3 =		31	0.9 x 8 =	
10	4 x 3 =		32	0.08 x 9 =	
11	0.4 x 3 =		33	0.9 x 9 =	
12	0.04 x 3 =		34	0.08 x 8 =	
13	0.05 x 3 =		35	0.7 x 7 =	
14	0.5 x 3 =		36	0.06 x 6 =	
15	5 x 3 =		37	0.5 x 5 =	

5	0.4 x 2 =		27	0.08 x 3 =	
6	0.04 x 2 =		28	0.8 x 5 =	
7	3 x 3 =		29	0.08 x 2 =	
8	0.3 x 3 =		30	0.08 x 7 =	
9	0.03 x 3 =		31	0.9 x 8 =	
10	4 x 3 =		32	0.08 x 9 =	
11	0.4 x 3 =		33	0.9 x 9 =	
12	0.04 x 3 =		34	0.08 x 8 =	
13	0.05 x 3 =		35	0.7 x 7 =	
14	0.5 x 3 =		36	0.06 x 6 =	
15	5 x 3 =		37	0.5 x 5 =	
16	4 x 4 =		38	0.06 x 8 =	
17	0.4 x 4 =		39	0.7 x 9 =	
18	0.04 x 4 =		40	0.08 x 3 =	
19	8 x 4 =		41	0.9 x 6 =	
20	0.8 x 4 =		42	0.05 x 7 =	
21	0.08 x 4 =		43	0.12 x 6 =	
22	0.6 x 4 =		44	0.12 x 8 =	

Activate Knowledge

3×4.1 is?

Activate Knowledge

12.3 x 10 ÷ 10 is?

Activate Knowledge

$3 \times 4.1 \times 1$ is?

Activate Knowledge

3×2.4 is?

Activate Knowledge

7.2 x 10 ÷ 10 is?

Activate Knowledge

$3 \times 2.4 \times 1$ is?

Activate Knowledge

$3 \times 4 \times 17.6 \div 17.6$ is?

Activate Knowledge

Mr. Mohr wants to build a rectangular patio using concrete tiles that are 12 inches square. The patio will measure 13.5 feet by 43 feet. What is the area of the patio? How many concrete tiles will he need to complete the patio?

Learn

7.38 × 41

Compare this problem with the application problem

Learn

7.38 × 41

Estimate the product

Learn

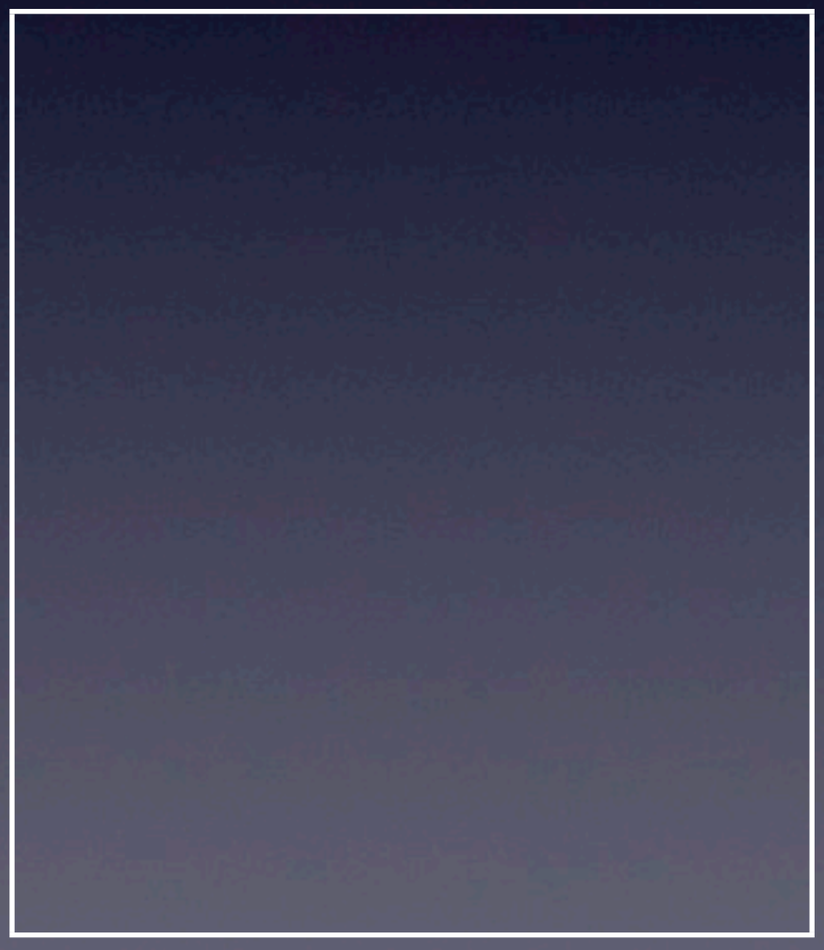
7.38 × 41

Predict whether our estimate is greater than or less than the actual product.

Learn

Use an area model to find the product

7.38×41

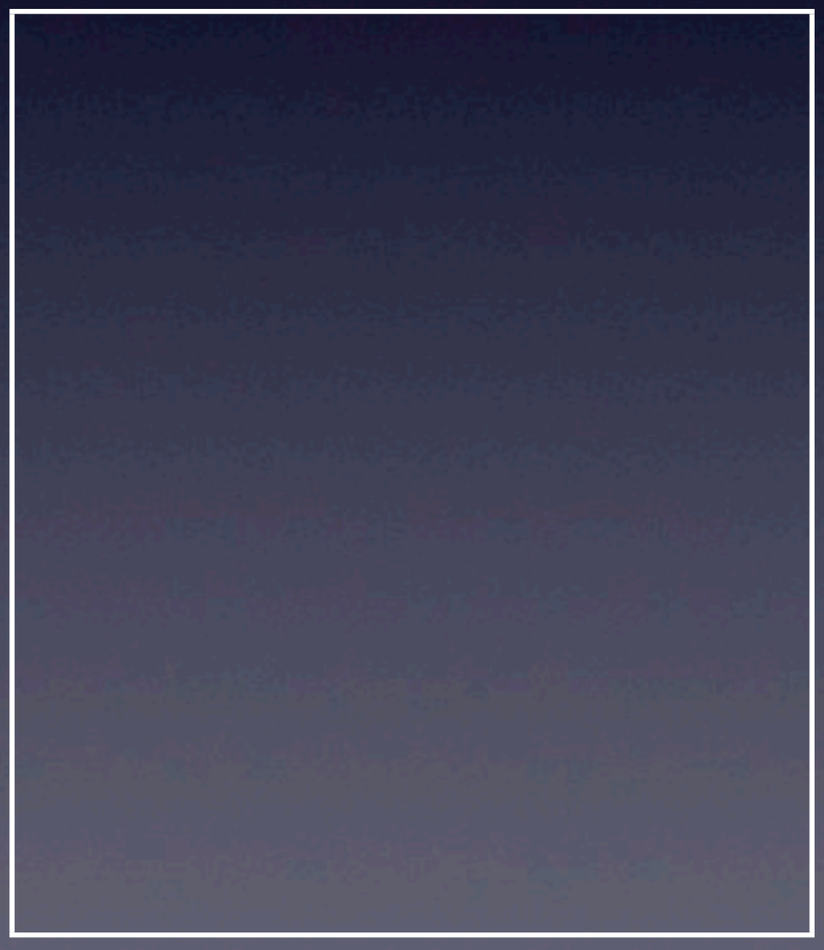


Problem 1

Learn

Solve using the algorithm

7.38×41



Problem 1

Learn

Estimate the product

8.26 × 128

Problem 2

Learn

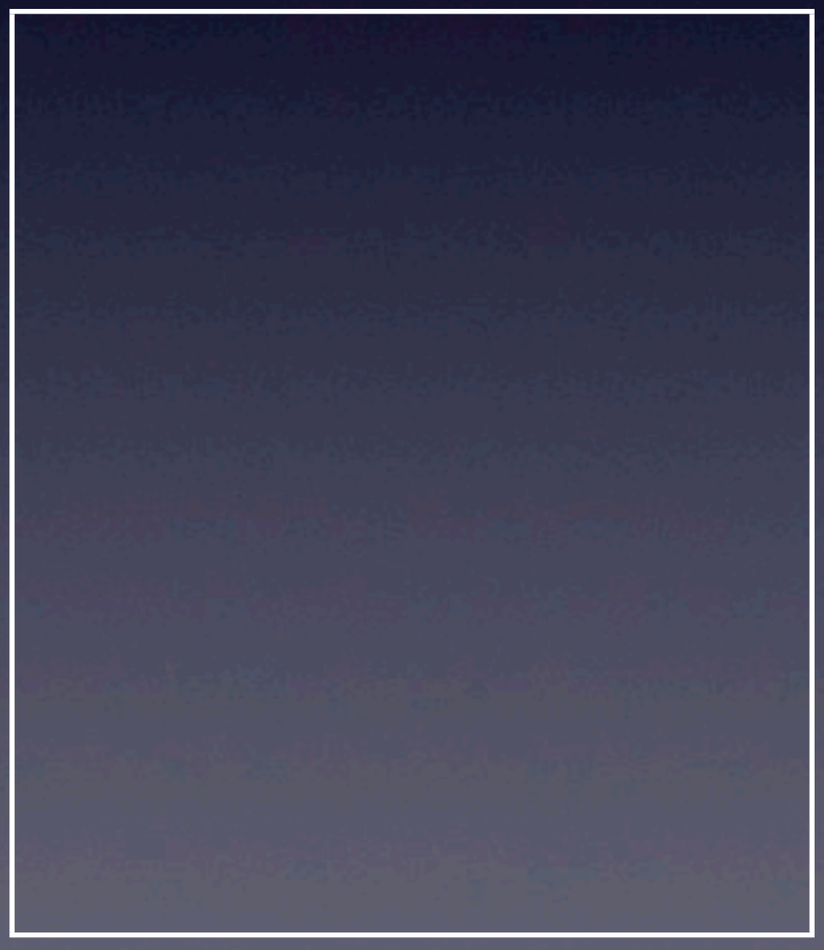
8.26 × 128

Predict whether our estimate is greater than or less than the actual product.

Learn

Use an area model to find the product

8.26 × 128

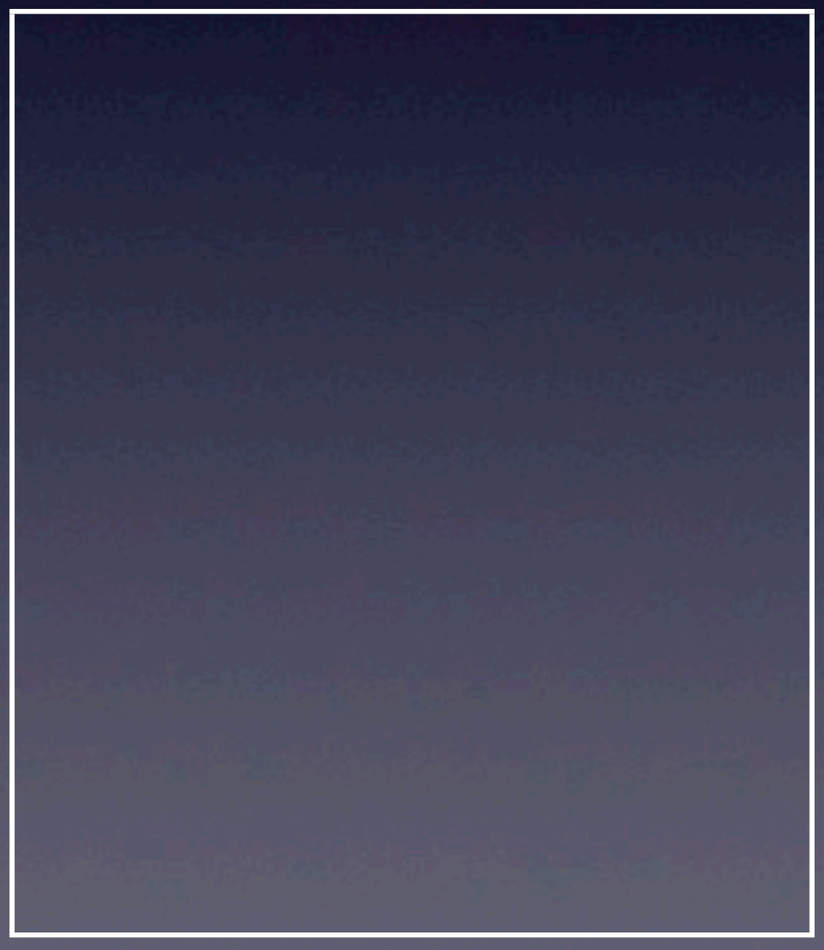


Problem 2

Learn

Solve using the algorithm

8.26 × 128



Learn

82.51 × 63

Estimate the product

Learn

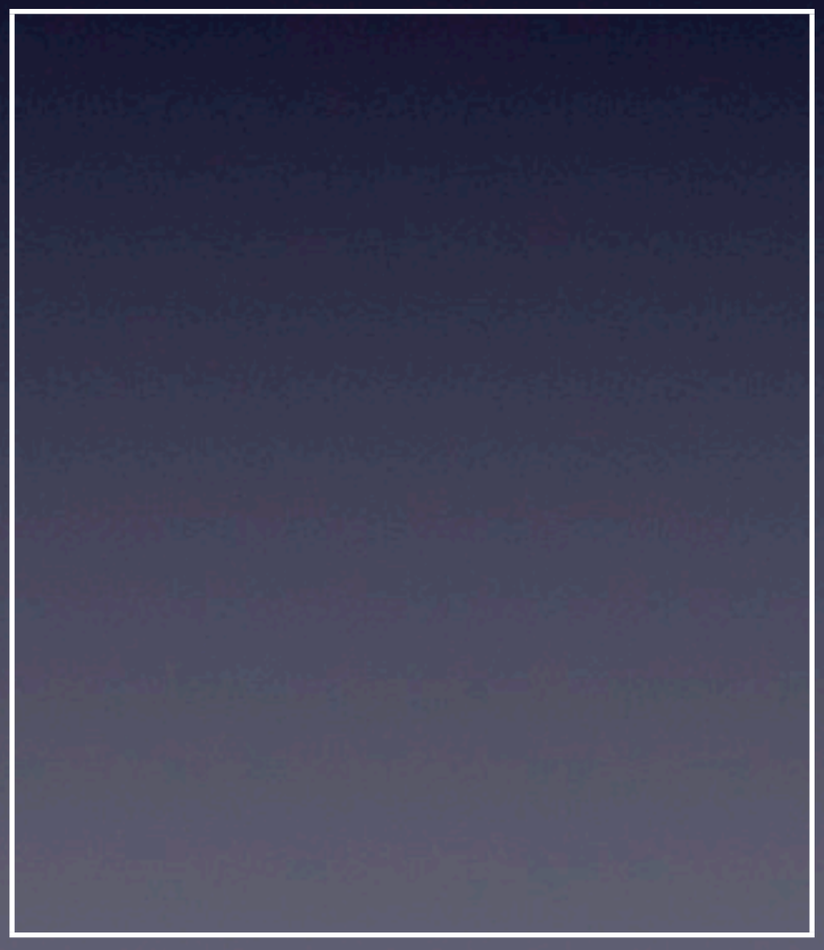
82.51 × 63

Predict whether our estimate is greater than or less than the actual product.

Learn

Use an area model to find the product

82.51 × 63

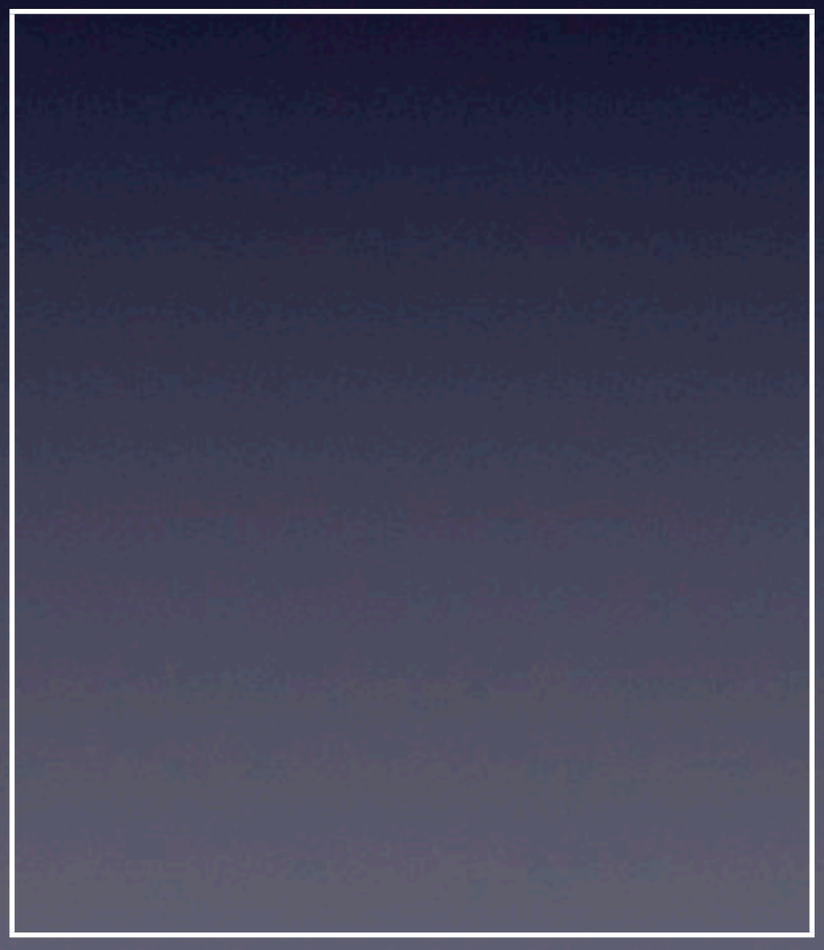


Problem 3

Learn

Solve using the algorithm

82.51 × 63

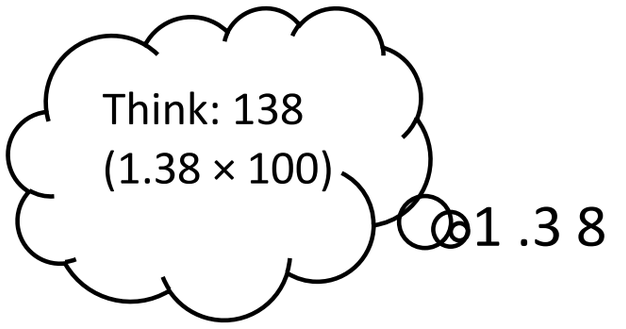


Practice

Name _____ Date _____

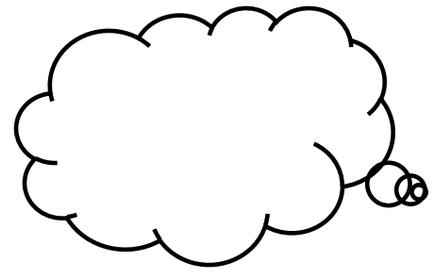
1. Estimate the product. Solve using the standard algorithm. Use the thought bubbles to show your thinking. (Draw an area model on a separate sheet if it helps you.)

a. $1.38 \times 32 \approx$ _____ × _____ = _____

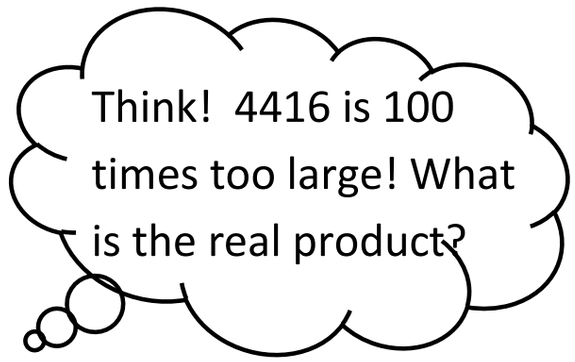


$$\begin{array}{r} 1.38 \\ \times\ 32 \\ \hline \end{array}$$

b. $3.55 \times 89 \approx$ _____ × _____ = _____



$$\begin{array}{r} 3.55 \\ \times\ 89 \\ \hline \end{array}$$



1.38×32 = _____

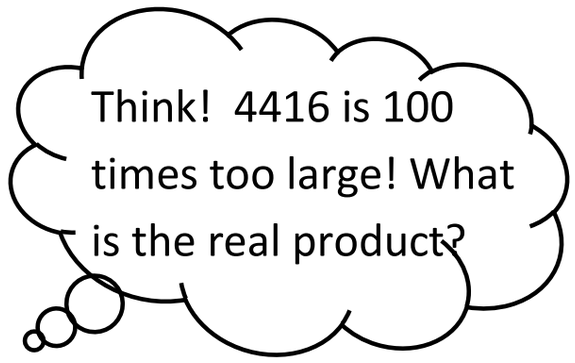
3.55×89 = _____

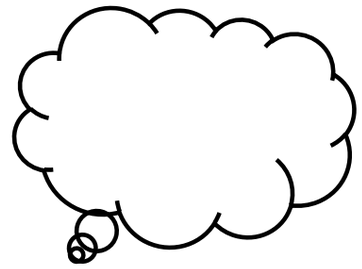
2. Solve using the standard algorithm.

a. 5.04×8

b. 147.83×67

× 32





1.38 × 32 = _____

3.55 × 89 = _____

2. Solve using the standard algorithm.

a. 5.04 × 8

b. 147.83 × 67

c. 83.41 × 504

d. 0.56 × 432

3. Use the whole number product and place value reasoning to place the decimal point in the second product. Explain how you know.

   a. If $98 \times 768 = 75{,}264$ then $98 \times 7.68 =$ _____

   b. If $73 \times 1{,}563 = 114{,}099$ then $73 \times 15.63 =$ _____

   c. If $46 \times 1{,}239 = 56{,}994$ then $46 \times 123.9 =$ _____

4. Jenny buys 22 pens that cost $1.15 each and 15 markers that cost $2.05 each. How much will Jenny spend?

5. A living room measures 24 feet by 15 feet. An adjacent square dining room measures 13 feet on each side. If carpet costs $6.98 per square foot, what is the total cost of putting carpet in both rooms?

4. Jenny buys 22 pens that cost $1.15 each and 15 markers that cost $2.05 each. How much will Jenny spend?

5. A living room measures 24 feet by 15 feet. An adjacent square dining room measures 13 feet on each side. If carpet costs $6.98 per square foot, what is the total cost of putting carpet in both rooms?

3. A publisher prints 1,912 copies of a book in each print run. If they print 305 runs, the manager wants to know about how many books will be printed. What's a reasonable estimate?

Review