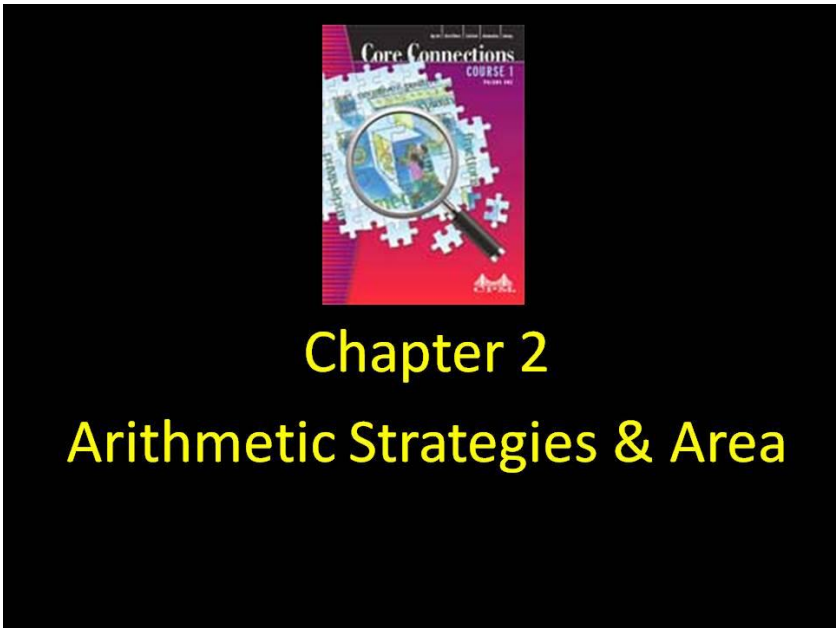


Extra Practice Packet For The Chapter 2 Test

*Math Notes: Displays Of Data

*Math Notes: Stem & Leaf Plots

*Math Notes: Area

*Math Notes: Area, Rectangles, & Square Units

*Math Notes: Generic Rectangles

*Math Notes: Greatest Common Factors

*Math Notes: Distributive Property

*Histograms & Bar Graphs

*Multiplying w/ Generic Rectangles

*Additional Generic Rectangle Help & Practice

*Decimal Worksheets & Exercises

-Determining Decimal Place Value

-Rounding Decimals

-Arranging Decimals

-Adding & Subtracting Decimals

-Multiplying Decimals

*Adding & Subtracting Decimals

*Comparing Decimals

*Multiplying Decimals

*Stem & Leaf Plots

*Distributive Property

*Area Of Irregular Figures

*Area Of Shapes Of Partial Block Figures

*Shape Designs & Pattern Blocks

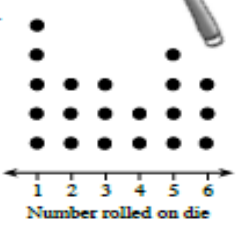
NOTES:

MATH NOTES

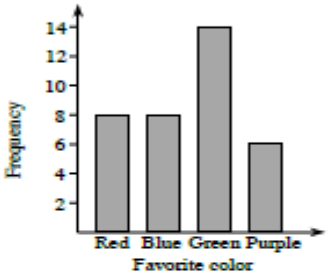
DISPLAYS OF DATA

Data can be displayed visually in different formats depending on the kind of information collected.

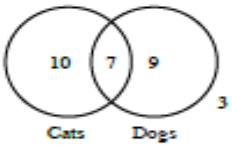
A **dot plot** is a way of displaying data that has an order and can be placed on a number line. Dot plots are generally used when the data is discrete (separate and distinct) and numerous pieces of data fall on most values. Examples: the number of siblings each student in your class has, the number of correct answers on a quiz, or the number rolled on a die (the graph at right shows 20 rolls).



A **bar graph** is used when data falls in categories that typically have no numerical order. The graph at right shows that green is the favorite color of 14 students.



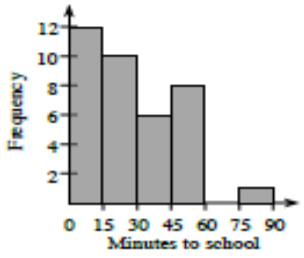
A **Venn diagram** is two or more overlapping circles used to show overlap between categories of data. The diagram at right shows that 7 students have both dogs and cats, 9 students have only dogs, 10 have only cats,3 students do not have a dog or a cat, 16 students have dogs, and 17 students have cats.



HISTOGRAMS

A **histogram** is similar to a dot plot except that each bar represents data in an interval of numbers. The intervals for the data are shown on the horizontal axis. The frequency (number of pieces of data in each interval) is represented by the height of a bar above the interval. Each interval is also called a **bin**.

The labels on the horizontal axis represent the lower end of each interval. For example, the histogram at right shows that 10 students take at least 15 minutes but less than 30 minutes to get to school.



Histograms and dot plots are for displaying numeric data with an order. Bar graphs are for data in categories where order generally does not matter.

STEM-AND-LEAF PLOTS

A **stem-and-leaf plot** is similar to a histogram except that it shows the individual values from a set of data and how the values are distributed. The "stem" part of the graph represents all of the digits in a number except the last one. The "leaf" part of the graph represents the last digit of each of the numbers. Every stem-and-leaf plot needs a "key." The place value of the entries is determined by the key. This is important because 8|2 could mean 82 or 8.2.

Example: Students in a math class received the following scores on their tests: 49, 52, 54, 58, 61, 61, 67, 68, 72, 73, 73, 73, 78, 82, and 83. Display the test-score data on a stem-and-leaf plot.

Key
8|2 means "82"

4	9
5	2 4 8
6	1 1 7 8
7	2 3 3 3 8
8	2 3

"stem" "leaves"

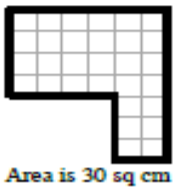
AREA

The area of a region is the number of square units of the interior of a region. In this course, you will be asked to consider the area of flat regions (known as plane figures), such as the top of a table, the floor of your classroom, other various geometric shapes, or the surface of a pond.

To measure the area of a region, be sure to remember these important points:

- Any square can be used as a unit of area—a square inch, a square sticky note, a square centimeter, the square face of a block—but depending on the object being measured, some units are more convenient and common than others.
- To determine the area of a region, count the number of square units that are needed to cover the region completely without gaps or overlaps.
- If the square units you have chosen do not fit exactly within the region boundaries, you will have to find a way to determine what part of the square units are needed.
- When the answer is stated, be sure to include the kind of square units that are being used.

Example: In the sample figures below, assume each small square is one square centimeter and estimate the area of each figure.



Area is 30 sq cm

Area is between 23 and 24 sq cm

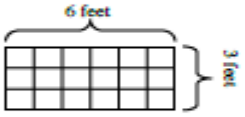
NOTES:

NOTES:

AREA, RECTANGLES, AND SQUARE UNITS

To find the **area of a rectangle**, choose a conveniently sized square unit to cover the rectangle exactly with no overlaps. Sometimes parts of square units are needed to cover the rectangle completely.

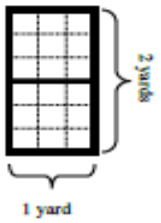
In the rectangle at right, using squares with side lengths of one foot, it takes 18 squares to cover the rectangle. Therefore, the area of the rectangle is 18 square feet.



One way to count squares in a rectangle quickly is to multiply the lengths of two sides that meet (intersect) at a corner, since multiplication is defined as repeated addition. For example, the region of the rectangle above can be seen as either six groups of three squares (viewed as columns) or three groups of six squares (viewed as rows). In either case, the area of a rectangle can be computed using:

$$A = (\text{length})(\text{width})$$

The same-sized shape may appear to have different areas if it is measured using different units of measure. Of course, the area did not change, but the number of different-sized units did. Note that the rectangle shown at right is the same size as the one above, but it is measured in yards instead of feet. The top rectangle has an area of 18 square feet. The area of the rectangle at right has an area of 2 square yards.



Units for area can be abbreviated using symbols. The area 18 square feet is abbreviated 18 sq ft or 18 ft^2. The area 2 square yards is abbreviated 2 sq yd or 2 yd^2.

MULTIPLICATIONS USING GENERIC RECTANGLES

To prepare for later topics in this course and future courses it is helpful to use an area model or generic rectangle to represent multiplication.

For the problem 67 • 46, think of 67 as 60 + 7 and 46 as 40 + 6. Use these numbers as the dimensions of a large rectangle as shown at right. Determine the area of each of the smaller rectangles and then find the sum of the four smaller areas. This sum is the answer to the original problem.

	60	7
40	2400	280
6	360	42

$$67 \cdot 46 = (60 + 7)(40 + 6) = 2400 + 280 + 360 + 42 = 3082$$

GREATEST COMMON FACTOR

To find the **area of a rectangle**, choose a conveniently sized square unit to cover the rectangle exactly with no overlaps. Sometimes parts of square units are needed to completely cover the rectangle.

The **greatest common factor** of two or more integers is the greatest positive integer that is a factor of both (or all) of the integers.

For example, the factors of 18 are 1, 2, 3, 6, and 18 and the factors of 12 are 1, 2, 3, 4, 6, and 12, so the greatest common factor of 12 and 18 is 6.

DISTRIBUTIVE PROPERTY

The **Distributive Property** states that the multiplier of a sum or difference can be "distributed" to multiply each term. For example to multiply 8(24), written as 8(20 + 4), you can use the generic-rectangle model below.

The product is found by 8(20) + 8(4).
So 8(20 + 4) = 8(20) + 8(4).

	20	4
8	8 • 20	8 • 4

NOTES:

GRAPHICAL REPRESENTATIONS OF DATA

HISTOGRAMS AND BAR GRAPHS

Histograms and bar graphs are visual ways to represent data. Both consist of vertical bars (called bins) with heights that represent the number of data points (called the frequency) in each bin.

Histograms are for displaying distributions of numerical data. In a histogram each bar represents the number of data elements within a certain range of values. All the bars touch each other. Values at the left side of a bin's range are included in that bin. Each range of values should have the same width.

Bar graphs are for displaying categorical data. In a bar graph each bar represents the number of data elements in a certain category. All the bars are the same width and are separated from each other.

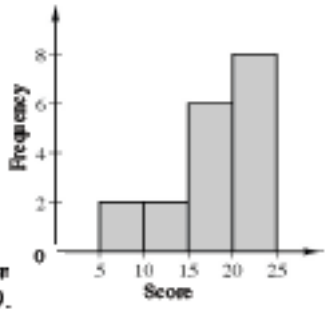
For additional information and examples, see the Math Notes boxes in Lessons 2.1.2 and 2.2.1 of the *Core Connections, Course 1* text, or Lesson 7.1.1 of the *Core Connections, Course 2* text. For additional examples and practice, see the *Core Connections, Course 1* Checkpoint 9A materials or *Connections, Course 2* Checkpoint 7B materials in the back of those texts.

Example 3

The scores for a 25-point quiz are listed below arranged from least to greatest.

7, 7, 12, 13, 15, 16, 16, 16, 18, 19, 20, 20, 20, 21, 21, 22, 23, 24

Using intervals of five points, create a histogram for the class.



See histogram at right. Scores on the right end of the interval are included in the next interval. The interval between 10 and 15 only includes the two scores of 12 and 13. The interval between 15 and 20 only includes the six scores of 15, 16, 16, 16, 18, and 19.

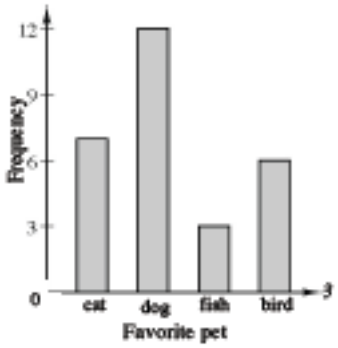
Example 4

Ms. Lim asked each of her students about their favorite kind of pet. Based on their responses, she drew the bar graph at right. Use the bar graph to answer each question.

a. What is the favorite pet?

b. How many students chose a bird as their favorite pet?

c. What was the least favorite pet?

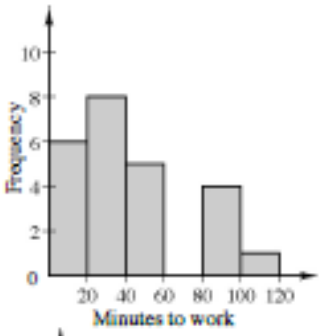


d. If every student voted once, how many students are in the class?

Answers: a. dog b. 6 c. fish d. 28

Problems

5. Mr. Diaz surveyed his employees about the time it takes them to get to work. The results are shown in the histogram at right.



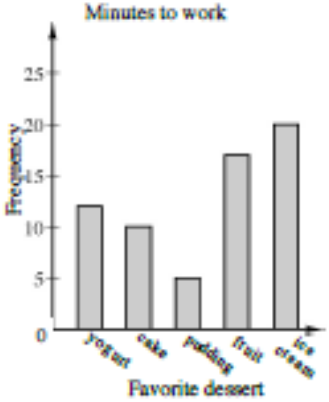
   a. How many employees completed the survey?

   b. How many employees get to work in less than 20 minutes?

   c. How many employees get to work in less than 40 minutes?

   d. How many employees take 60 minutes to get to work?

6. The two sixth grade classes at Vista Middle School voted for their favorite dessert. The results are shown in the bar graph at right for the five favorite choices.



   a. What was the favorite dessert and how many students made that choice?

   b. How many students selected cake as their favorite dessert?

   c. How many students selected yogurt as their favorite?

   d. How many more students selected ice cream than pudding?

7. Mr. Fernandez asked 30 people at work how many pets they owned. The results are shown at right. Make a histogram to display this data. Use intervals of one pet.

0 pets	5 people
1 pet	8 people
2 pets	10 people
3 pets	3 people
4 pets	2 people
5 pets	1 person
9 pets	1 person

8. During the fist week of school Ms. Chan asked her students to name the county where they were born. There were so many different countries she grouped them by continent:

   North America: 14 students, South America: 2 students, Europe: 3 students, Asia: 10 students, Africa: 1 student, Australia: 0 students.

   Make a bar graph to display this information.

9. Three coins were tossed 20 times and the number of results that were "heads" each time is shown below:

   1, 1, 2, 0, 2, 3, 1, 2, 1, 2, 2, 1, 3, 2, 0, 1, 2, 0, 2, 1

   Make a histogram to show the results.

10. The physical education teacher at West Middle School asked the class about their favorite winter activity. Here were the results:

    reading: 8 students, ice skating: 4 students, skiing: 6 student, snowboarding: 11 students, computer activities: 14 students.

    Make a bar graph to show the results.

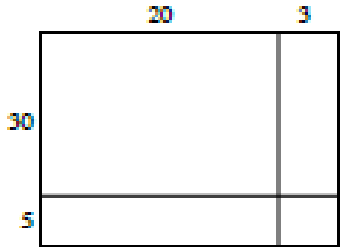
MULTIPLICATION WITH GENERIC RECTANGLES

If a large rectangle is cut into a number of smaller rectangles, then the area of the large rectangle is equal to the sum of the areas of all the smaller rectangles. The idea of breaking a product up into parts is the basis for multiplication using generic rectangles. We say "generic" because the dimensions are not to scale. We use it to help us visualize multiplication and as a way to multiply numbers by using a diagram. Multiplication using rectangle models reinforces the multiplication algorithm and will continue to be used and extended through Algebra 1 and Algebra 2. For additional information, see the Math Notes box in Lesson 2.3.2 of the Core *Connections, Course 1* text and Lesson 2.2.1 of the *Core Connections, Course 2* text.

Example 1

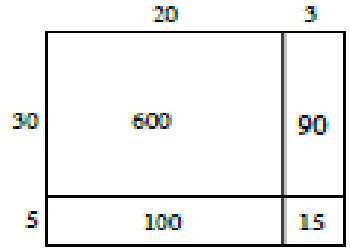
Multiply $23 \cdot 35$ using a generic rectangle.

Since we are multiplying a two-digit number by a two-digit number we need a generic rectangle as shown at right. The numbers to be multiplied are separated (decomposed) based on place value. In this case, for example, 23 has two tens (20) and 3 ones.



The area of the product (the large rectangle) is equal to the sum of the areas of each of the smaller rectangles. The area of each of the smaller rectangles is found by multiplying its dimensions.

Find the area of each of the smaller rectangles and then sum them together.

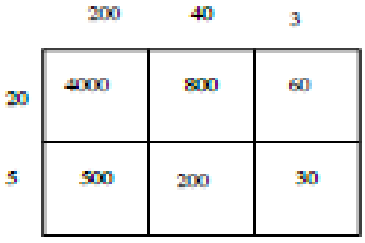


$23 \cdot 35 = (20 + 3)(30 + 5) = 600 + 100 + 90 + 15 = 805$

Example 2

Multiply $243 \cdot 25$ using a generic rectangle.

Since we are multiplying a three-digit number by a two-digit number we need six sections in our rectangle. Fill in the areas and add them together to get:



$243 \cdot 25 = 4000 + 800 + 500 + 200 + 60 + 30 = 5590$

Problems

Use a generic rectangle to find each product.

1. 47 · 52
2. 38 · 84
3. 126 · 35
4. 72 · 39
5. 67 · 89
6. 347 · 85

What multiplication problem does each generic rectangle represent and what is the product?

7.

	6
30	1500
	250

8.

70	
	200
210	15

9.

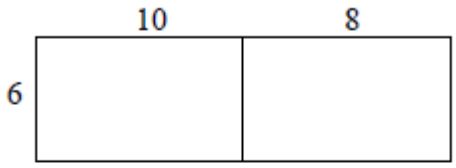
		7
30		1800
	1600	56

Answers

1. 2444
2. 3192
3. 4410
4. 2808
5. 5963
6. 29,495
7. $56 \cdot 35 = 1960$
8. $75 \cdot 43 = 3225$
9. $267 \cdot 38 = 10,146$

Additional Generic Rectangle Help & Practice

On your note paper draw a rectangle, divide it into two columns.



Across the top write 18 in expanded form with the 10 above the first box and the 8 above the second box. Then write 6 to the left of the first box. How is this similar to our rectangle we broke apart on the graph paper? Discuss with your partner. (Share student responses. Below is a good example to share.)

Example: It is in 2 parts, it uses expanded notation.

How can I solve this? Discuss with your partner. (Share student responses. Below is a good example to share.)

Example: Multiply $(6 \times 10) + (6 \times 8)$ for the partial products from each box.

This method is called a Generic Rectangle. You break apart your number using expanded notation. Then multiply to find the partial products and then add the partial product to find the whole product. Now you try to use a Generic Rectangle to find the product for #36 on our warm-up 8×45.

	40	5
8	320	40

$320 + 40 = 360$

(Share student responses.)

Let's look at #32 on our warm-up. What is 528 written in expanded notation?
$[500 + 20 + 8]$

What is 49 decomposed using expanded notation? $[40 + 9]$

My new dimensions, or factors, are $500 + 20 + 8$ and $40 + 9$. Draw a large box in your notes and label the dimensions above. Make a column or row for each of the plus signs. Why are there 6 boxes? [You have 3 factors by 2 factors, a 3 by 2 box would have 6 squares.]

	500	+	20	+	8
40					
+					
9					

Label each box with the equation you would use to find the partial product for that square.
How do you find the total product for 528 and 49?

	500	+ 20	+ 8
40 + 9	500 x 40 = 20,000	20 x 40 = 800	8 x 40 = 320
	500 x 9 = 4,500	20 x 9 = 180	9 x 8 = 72

20,000
4,500
800
180
320
+ 72
25,872

Add the partial products.
What is the answer? [25,872]

You Try:

637
× 51

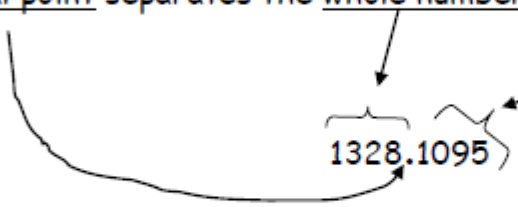
	600	+ 30	+ 7
50 + 1	600 x 50 = 30,000	30 x 50 = 1500	7 x 50 = 350
	600 x 1 = 600	30 x 1 = 30	7 x 1 = 7

30,000
1,500
600
350
30
+ 7
32,487

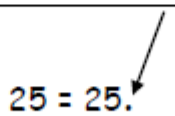
Decimals Worksheets

Decimal Place Values

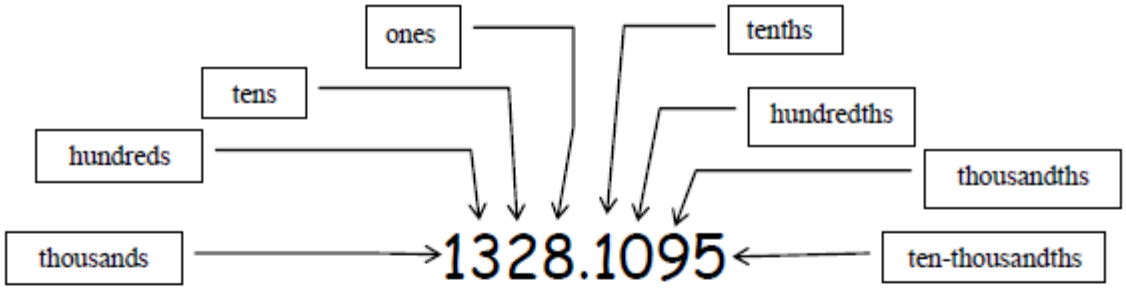
The decimal point separates the whole numbers from the fractional part of a number.



In a whole number the decimal point is all the way to the right, even if it is not shown in a problem.



The place values of the number 1328.1095 are shown below:



In word problems you will be asked to translate numbers from English. The word "and" is where the decimal point will go.

Write the following numbers:

Fifty-eight = 58

One-hundred twenty-five thousandths = .125

One hundred and twenty-five thousandths = 100.025

Eleven and three hundredths = 11.03

Six thousand forty and nine tenths = 6,040.9

In the number 2039.876, what digit is in the tenths place? 8
In the number 2039.876, what digit is in the ones place? 9
In the number 2039.876, what digit is in the tens place? 3
In the number 2039.876, what digit is in the thousandths place? 6

Exercise 1 (answer key starts on page 19)

1) In the number 78.9, what digit (number) is in the tenths place? _____
2) In the number 78.9, what digit (number) is in the ones place? _____
3) In the number 78.9, what digit (number) is in the tens place? _____
4) In the number 6174.903, what digit is in the thousands place? _____
5) In the number 6174.903, what digit is in the thousandths place? _____
6) In the number 6174.903, what digit is in the hundredths place? _____
7) In the number 6174.903, what digit is in the tenths place? _____
8) In the number 6174.903, what digit is in the ones place? _____
9) In the number 6174.903, what digit is in the tens place? _____
10) In the number 6174.903, what digit is in the hundreds place? _____

Exercise 2

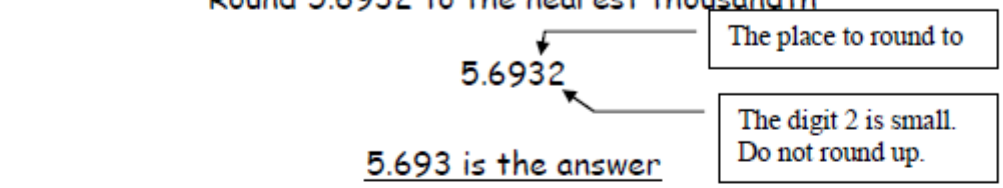
Directions: translate the following numbers from English into decimal numbers

1. Twenty-nine _____
2. Eighty-one hundredths _____
3. Nine thousand thirty-four *and* seven tenths _____
4. One *and* four thousandths _____
5. One hundred *and* sixty-two thousandths _____
6. Forty-five hundredths _____
7. Four thousand three hundred twenty-one ten-thousandths _____
8. One hundred twenty *and* five tenths _____
9. Seventeen thousandths _____
10. One *and* seven tenths _____

Rounding Decimal Numbers

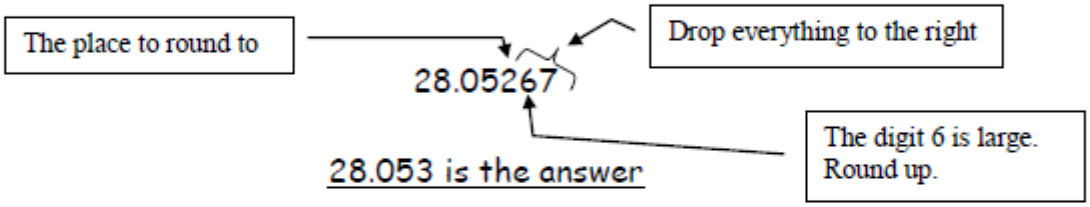
When rounding decimal numbers, first look at the number place you are asked to round to. Then look at the digit (number) just to its right. If that digit is smaller than 5 (0, 1, 2, 3, or 4), then do not round up. If the digit is 5 or larger (5, 6, 7, 8, 9), then round up.

Round 5.6932 to the nearest thousandth



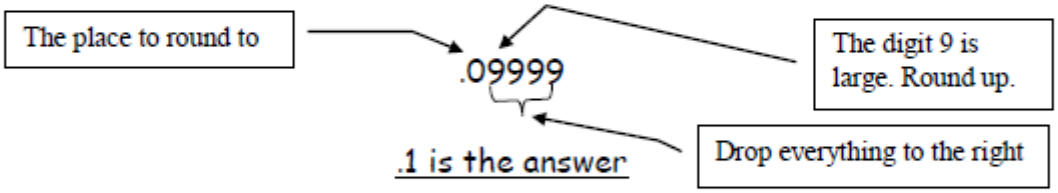
5.693 is the answer

Round 28.05267 to the nearest thousandth



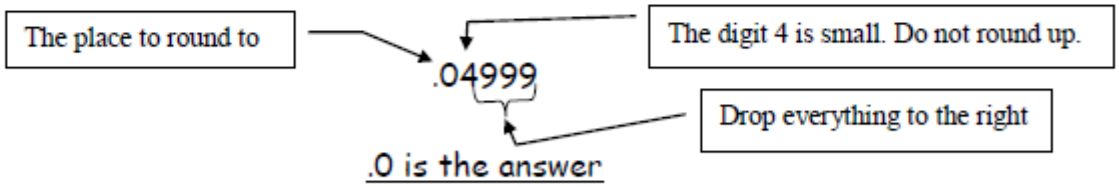
28.053 is the answer

Round .09999 to the nearest tenth



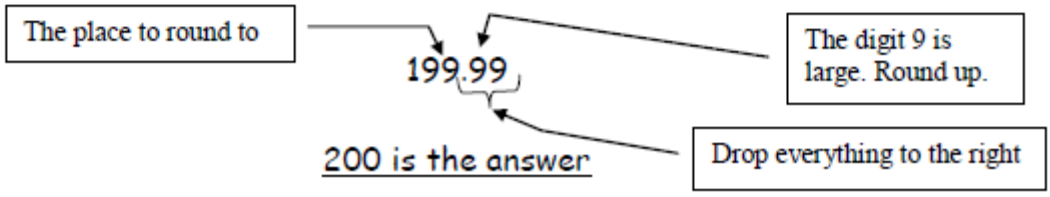
.1 is the answer

Round .04999 to the nearest tenth



.0 is the answer

Round 199.99 to the nearest whole (ones) number



200 is the answer

Exercise 3

Directions: Round the following decimal numbers to the place indicated

1) .1325 to thousandths _____

2) .0091 to thousandths _____

3) .0196 to thousandths _____

4) 5.1234 to thousandths _____

5) 6.6666 to thousandths _____

6) 40.61884 to thousandths _____

7) 1.99999 to thousandths _____

8) .1325 to hundredths _____

9) .0091 to hundredths _____

10) .3333 to hundredths _____

11) 5.567 to hundredths _____

12) 48.001 to hundredths _____

13) 7.987 to tenths _____

14) .666 to tenths _____

15) 1.32 to tenths _____

16) 99.99 to tenths _____

17) .5 to whole (ones) number _____

18) 11.99 to whole (ones) number _____

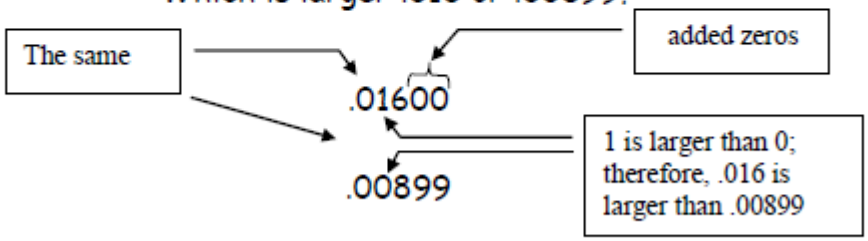
19) 499 to the nearest hundred _____

20) 999 to the nearest thousand _____

Arranging decimal numbers by size

When comparing decimal numbers and arranging them in order it is usually easiest to line up the numbers vertically with the decimal points in a vertical line. If a number doesn't have a decimal point, place the decimal at the end. You may fill in blanks with zeroes to make the columns easier to line up.

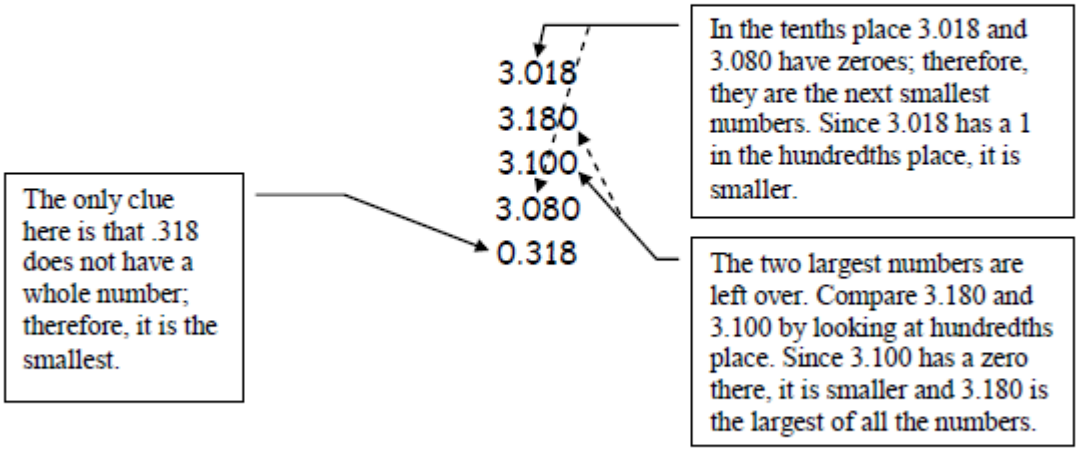
Which is larger .016 or .00899?



.016 is the answer

Arrange from the smallest to the largest:

3.018 3.18 3.1 3.08 .318



from smallest to largest, they are:

.318 3.018 3.08 3.1 3.18

Exercise 7

Directions: arrange these numbers from <u>largest to smallest</u>:

1) 2.62 2.061 2.612 0.66 6.21

_____

2) 14.01 140.1 1.401 14.1 14.11

_____

3) .0067 .007 .00618 .00701 .006

_____

4) .1 .01 1 1.1 .019

_____

5) 5.1 5 5.01 5.09 5.91

_____

Exercise 8

Directions: arrange these numbers from <u>smallest to largest</u>:

1) 7.8 8.7 8.2 7.96 8.014

_____

2) 0.15 .01 .1 .0101 .001

_____

3) 94 93.999 93.909 93.99901 94.0001

_____

4) 16.83 16.38 16.3 16.8 16

_____

5) 3.49 3.489 3.4899 3.48999 3.48989

_____

<u>Adding and Subtracting Decimal Numbers</u>

When adding and subtracting decimal numbers, line up the decimal point of all the numbers. If a number does not show a decimal point, place one to the right of the whole number. You may add zeroes to keep the columns lined up.

Add 13.6 and 42.18

```
  13.60
+ 42.18
  55.78
```

Add a zero

Add 1347 and .0005

```
  1347.0000
+     .0005
  1347.0005
```

Add zeroes

Subtract 14.69 from 113.06

```
  113.06
-  14.69
   98.37
```

The wording here can be confusing. Notice how "subtract 14.69 from 113.06" means 113.06 – 14.69

146 - 3.198

```
  146.000
-   3.198
  142.802
```

Add zeroes

Exercise 9

Directions: add or subtract the following

1)
$$\begin{array}{r} 8.7 \\ +\ 5.4 \\ \hline \end{array}$$

2) 74.906 + .01 + 42 =

3) 8416 + .28 + 1.489 =

4)
$$\begin{array}{r} 38.64 \\ -\ \ 8.87 \\ \hline \end{array}$$

5) 462 – 31.2 =

6) 16.001 - 12.984 =

7) .1 + 1.9 + 13 =

8) 20 – 14.8 - .018 =

9) 6 + 132.89 =

10) 346.8912 – 29.98764

11)
$$\begin{array}{r} 11.00001 \\ -\ \ 1.11234 \\ \hline \end{array}$$

12)
$$\begin{array}{r} 1234. \\ -\ \ \ .1234 \\ \hline \end{array}$$

13) 124.8 + 3.79 – 118.965

14) Subtract 6.8 from 14.2

15) Subtract 38.97 from 59

16) Add .001 to 87

17) Add 5000 to .0186

18)
$$\begin{array}{r} .40 \\ 3.80 \\ 26.91 \\ +\ 587.89 \\ \hline \end{array}$$

19)
$$\begin{array}{r} 143.012 \\ +\ \ 98.764 \\ \hline \end{array}$$

20) Subtract .001 from .01

Multiplying Decimal Numbers

When multiplying decimal numbers, set up the problem like regular multiplication. When you get your answer, add up the total number of digits to the right of the decimals in both the numbers you are multiplying and place the decimal in your answer that many places from the right end.

.02 × .008

.008 (three digits)
× .02 (two digits)
.00016 (five digits)

.00016 is the answer

20 × .8

20
× .8
16.0

16.0 is the answer

When multiplying three numbers together, multiply any two to get an answer; then multiply that answer by the third number.

.3 × 1.02 × 46

1.02 (two digits)
× .3 (one digit)
.306 (three digits)

.306
× 46
1836
1224
14.076

14.076 is the answer

Exercise 10

Directions: Multiply the following

1) 1.67×3.2

2) $84.78 \times .612$

3) $98.47 \times .7$

4)
$$\begin{array}{r} .8842 \\ \times\ .002 \\ \hline \end{array}$$

5)
$$\begin{array}{r} 5.76 \\ \times\ .25 \\ \hline \end{array}$$

6)
$$\begin{array}{r} 8.04 \\ \times .004 \\ \hline \end{array}$$

7)
$$\begin{array}{r} 8.45 \\ \times\ .36 \\ \hline \end{array}$$

8)
$$\begin{array}{r} 4.095 \\ \times\ .006 \\ \hline \end{array}$$

9)
$$\begin{array}{r} 11.4 \\ \times\ 18 \\ \hline \end{array}$$

10)
$$\begin{array}{r} 36 \\ \times 1.1 \\ \hline \end{array}$$

11)
$$\begin{array}{r} .001 \\ \times .001 \\ \hline \end{array}$$

12)
$$\begin{array}{r} 8.88 \\ \times\ .88 \\ \hline \end{array}$$

13)
$$\begin{array}{r} 12.34 \\ \times 43.21 \\ \hline \end{array}$$

14) $.1 \times .1 \times .1$

15) $2.7 \times 8.3 \times .0014$

Answer Key

Exercise 1	Exercise 2	Exercise 3
1) 9	1) 29	1) .133
2) 8	2) .81	2) .009
3) 7	3) 9034.7	3) .020
4) 6	4) 1.004	4) 5.123
5) 3	5) 100.062	5) 6.667
6) 0	6) .45	6) 40.619
7) 9	7) .4321	7) 2.000
8) 4	8) 120.5	8) .13
9) 7	9) .017	9) .01
10) 1	10) 1.7	10) .33
		11) 5.57
Exercise 4	**Exercise 5**	12) 48.00
1) .125	1) $\frac{1}{4}$	13) 8.0
2) .286	2) $\frac{1}{5}$	14) .7
3) 2.167	3) $\frac{4}{}$	15) 1.3
4) .188	4) $\frac{3}{4}$	16) 100.0
5) .75	5) $\frac{4}{25}$	17) 1
6) .5	6) $\frac{5}{8}$	18) 12
7) 13.875	7) $16\frac{31}{100}$	19) 500
8) 8.667	8) $3\frac{7}{20}$	20) 1000
9) .625	9) $\frac{7}{100}$	
10) .667	10) $\frac{3}{16}$	
11) 5.063	11) $42\frac{13}{40}$	
12) 136.6	12) $7\frac{37}{100}$	

NOT INCLUDED IN THIS PACKET

NOT INCLUDED IN THIS PACKET

Exercise 7	Exercise 8	Exercise 9
1) 6.21, 2.62, 2.612, 2.061, 0.66	1) 7.8, 7.96, 8.014, 8.2, 8.7	1) 14.1
2) 140.1, 14.11, 14.1, 14.01, 1.401	2) .001, .01, .0101, .1, .15	2) 116.916
3) .00701, .007, .0067, .00618, .006	3) 93.909, 93.999, 93.99901, 94, 94.0001	3) 8417.769
4) 1.1, 1, .1, .019, .01	4) 16, 16.3, 16.38, 16.8, 16.83	4) 28.77
5) 5.91, 5.1, 5.09, 5.01, 5	5) 3.489, 3.48989, 3.4899, 3.48999, 3.49	5) 430.8
		6) 3.017
		7) 15
		8) 5.182
		9) 138.89
		10) 316.90356
		11) 9.88767
		12) 1233.8766
		13) 9.625
		14) 7.4
		15) 20.03
		16) 87.001
		17) 5000.0186
		18) 619
		19) 241.776
		20) .009

Exercise 10	Exercise 11	Exercise 12
1) 5.344	1) 2.3	1) 76.2 miles
2) 51.88536	2) 20	2) $314.25
3) 68.929	NOT INCLUDED IN THIS PACKET	llons
4) .0017684	4) 200	4) 2.8 feet
5) 1.44	5) .16	5) $300.80
6) .03216	6) .05	NOT INCLUDED IN THIS PACKET
7) 3.042	7) 23	7) 11.08 inches
8) .02457	8) 2.12	
9) 205.2	9) .01	
10) 39.6	10) .22	
11) .000001	11) .01	
12) 7.8144	12) 283.33	
13) 533.2114	13) 42.66	
14) .001	14) 400	
15) .031374	15) 2.50	

Adding & Subtracting Decimals

Name:

Solve each problem.

1) 78.9 - 55.779 = _____

2) 73 + 48.7 = _____

3) 41.3 - 20.65 = _____

4) 46 + 39.5 = _____

5) 72 - 67.01 = _____

6) 65 + 56.8 = _____

7) 58 - 45.183 = _____

8) 79.3 + 10.21 = _____

9) 17 - 1.2 = _____

10) 92 + 8.83 = _____

11) 67.15 - 24.302 = _____

12) 96 + 37.367 = _____

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Adding & Subtracting Decimals Name: **Answer Key**

Solve each problem.

1) 78.9 - 55.779 = 23.121

2) 73 + 48.7 = 121.7

3) 41.3 - 20.65 = 20.65

4) 46 + 39.5 = 85.5

5) 72 - 67.01 = 4.99

6) 65 + 56.8 = 121.8

7) 58 - 45.183 = 12.817

8) 79.3 + 10.21 = 89.51

9) 17 - 1.2 = 15.8

10) 92 + 8.83 = 100.83

11) 67.15 - 24.302 = 42.848

12) 96 + 37.367 = 133.367

Answers

1. **23.121**
2. **121.7**
3. **20.65**
4. **85.5**
5. **4.99**
6. **121.8**
7. **12.817**
8. **89.51**
9. **15.8**
10. **100.83**
11. **42.848**
12. **133.367**

Name : _____ Score : _____

Teacher : _____ Date : _____

Write the Correct Comparison Symbol (>, < or =) in Each Box

1) 1.95 ☐ 1.97

2) 0.39 ☐ 0.38

3) 10 ☐ 1

4) 8.18 ☐ 0.818

5) 1.96 ☐ 1.94

6) 5.42 ☐ 5.46

7) 9.26 ☐ 0.926

8) 4.58 ☐ 0.458

9) 2.58 ☐ 2.6

10) 8.11 ☐ 8.11

11) 4.45 ☐ 4.4

12) 8.72 ☐ 0.872

13) 7.58 ☐ 7.58

14) 2.48 ☐ 0.248

15) 1.73 ☐ 1.69

16) 0.61 ☐ 0.061

17) 8.06 ☐ 0.806

18) 2.09 ☐ 2.1

19) 1.49 ☐ 1.44

20) 3.5 ☐ 3.47

Name : _____ Score : _____

Teacher : _____ Date : _____

Write the Correct Comparison Symbol (>, < or =) in Each Box

1)	1.95	<	1.97	11)	4.45	>	4.4
2)	0.39	>	0.38	12)	8.72	>	0.872
3)	10	>	1	13)	7.58	=	7.58
4)	8.18	>	0.818	14)	2.48	>	0.248
5)	1.96	>	1.94	15)	1.73	>	1.69
6)	5.42	<	5.46	16)	0.61	>	0.061
7)	9.26	>	0.926	17)	8.06	>	0.806
8)	4.58	>	0.458	18)	2.09	<	2.1
9)	2.58	<	2.6	19)	1.49	>	1.44
10)	8.11	=	8.11	20)	3.5	>	3.47

Multiplying with Decimals

Name:

Solve each problem.

1) 63.9 × 7.0

2) 44.84 × 9.84

3) 88.6 × 5.01

4) 39.6 × 5.20

5) 28.15 × 5.5

6) 14.36 × 4.9

7) 63.14 × 2.08

8) 18.65 × 6.8

9) 16.92 × 8.4

10) 80.1 × 2.8

11) 5.9 × 3.9

12) 5.6 × 6.2

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Multiplying with Decimals

Name: **Answer Key**

Solve each problem.

1)
$$\begin{array}{r} 63.9 \\ \times\ 7.0 \\ \hline 0 \\ +\ 44730 \\ \hline 447.30 \end{array}$$

2)
$$\begin{array}{r} 44.84 \\ \times\ 9.84 \\ \hline 17936 \\ 358720 \\ +\ 4035600 \\ \hline 441.2256 \end{array}$$

3)
$$\begin{array}{r} 88.6 \\ \times\ 5.01 \\ \hline 886 \\ 0 \\ +\ 443000 \\ \hline 443.886 \end{array}$$

4)
$$\begin{array}{r} 39.6 \\ \times\ 5.20 \\ \hline 0 \\ 7920 \\ +\ 198000 \\ \hline 205.920 \end{array}$$

5)
$$\begin{array}{r} 28.15 \\ \times\ 5.5 \\ \hline 14075 \\ +\ 140750 \\ \hline 154.825 \end{array}$$

6)
$$\begin{array}{r} 14.36 \\ \times\ 4.9 \\ \hline 12924 \\ +\ 57440 \\ \hline 70.364 \end{array}$$

7)
$$\begin{array}{r} 63.14 \\ \times\ 2.08 \\ \hline 50512 \\ 0 \\ +\ 1262800 \\ \hline 131.3312 \end{array}$$

8)
$$\begin{array}{r} 18.65 \\ \times\ 6.8 \\ \hline 14920 \\ +\ 111900 \\ \hline 126.820 \end{array}$$

9)
$$\begin{array}{r} 16.92 \\ \times\ 8.4 \\ \hline 6768 \\ +\ 135360 \\ \hline 142.128 \end{array}$$

10)
$$\begin{array}{r} 80.1 \\ \times\ 2.8 \\ \hline 6408 \\ +\ 16020 \\ \hline 224.28 \end{array}$$

11)
$$\begin{array}{r} 5.9 \\ \times\ 3.9 \\ \hline 531 \\ +\ 1770 \\ \hline 23.01 \end{array}$$

12)
$$\begin{array}{r} 5.6 \\ \times\ 6.2 \\ \hline 112 \\ +\ 3360 \\ \hline 34.72 \end{array}$$

Answers

1. **447.30**
2. **441.2256**
3. **443.886**
4. **205.920**
5. **154.825**
6. **70.364**
7. **131.3312**
8. **126.820**
9. **142.128**
10. **224.28**
11. **23.01**
12. **34.72**

GRAPHICAL REPRESENTATIONS OF DATA

Students represent distributions of single-variable data numerical data using dot plots, stem-and-leaf plots, box plots, and histograms. They represent categorical one-variable data on bar graphs. Each representation communicates information in a slightly different way.

STEM-AND-LEAF-PLOTS

A stem-and-leaf plot is a way to display data that shows the individual values from a set of data and how the values are distributed. The "stem" part on the graph represents all of the digits except the last one. The "leaf" part of the graph represents the last digit of each number.

Read more about stem-and-leaf plots, and how they compare to dot plots and histograms, in the Math Notes in Lesson 2.1.2 and 2.2.1 in the *Core Connections, Course 1* text, and in the Math Notes in Lesson 7.1.1 of the *Core Connections, Course 2* text.

Example 1

Make a stem-and-leaf plot of this set of data: 34, 31, 37, 44, 38, 29, 34, 42, 43, 34, 52, and 41.

2	9
3	1 4 4 4 7 8
4	1 2 3 4
5	2

Example 2

Make a stem-and-leaf plot of this set of data: 392, 382, 380, 392, 378, 375, 395, 377, and 377.

37	5 7 7 8
38	0 2
39	2 2 5

Problems

Make a stem-and-leaf plot of each set of data.

1. 29, 28, 34, 30, 33, 26, 18, and 34.
2. 25, 34, 27, 25, 19, 31, 42, and 30.
3. 80, 89, 79, 84, 95, 79, 89, 67, 82, 76, 92, 89, 81, and 123.
4. 116, 104, 101, 111, 100, 107, 113, 118, 113, 101, 108, 109, 105, 103, and 91.

DISTRIBUTIVE PROPERTY

The Distributive Property shows how to express sums and products in two ways: $a(b+c) = ab + ac$. This can also be written $(b+c)a = ab + ac$.

Factored form	Distributed form	Simplified form
$a(b+c)$	$a(b)+a(c)$	$ab+ac$

To simplify: Multiply each term on the inside of the parentheses by the term on the outside. Combine terms if possible.

For additional information, see the Math Notes boxes in Lessons 2.3.4 and 7.3.2 of the *Core Connections, Course 1* text, Lesson 4.3.3 of the *Core Connections, Course 2* text, or Lesson 3.2.5 of the *Core Connections, Course 3* text. For additional examples and practice, see the *Core Connections, Course 1* Checkpoint 8A materials.

Example 1

$$\begin{aligned} 2(47) &= 2(40+7) \\ &= (2\cdot 40)+(2\cdot 7) \\ &= 80+14 = 94 \end{aligned}$$

Example 2

$$\begin{aligned} 3(x+4) &= (3\cdot x)+(3\cdot 4) \\ &= 3x+12 \end{aligned}$$

Example 3

$$\begin{aligned} 4(x+3y+1) &= (4\cdot x)+(4\cdot 3y)+4(1) \\ &= 4x+12y+4 \end{aligned}$$

Problems

Simplify each expression below by applying the Distributive Property.

1. $6(9+4)$
2. $4(9+8)$
3. $7(8+6)$
4. $5(7+4)$
5. $3(27) = 3(20+7)$
6. $6(46) = 6(40+6)$
7. $8(43)$
8. $6(78)$
9. $3(x+6)$
10. $5(x+7)$
11. $8(x-4)$
12. $6(x-10)$
13. $(8+x)4$
14. $(2+x)5$
15. $-7(x+1)$
16. $-4(y+3)$
17. $-3(y-5)$
18. $-5(b-4)$
19. $-(x+6)$
20. $-(x+7)$
21. $-(x-4)$
22. $-(-x-3)$
23. $x(x+3)$
24. $4x(x+2)$
25. $-x(5x-7)$
26. $-x(2x-6)$

Answers

1. $(6 \cdot 9) + (6 \cdot 4) = 54 + 24 = 78$
2. $(4 \cdot 9) + (4 \cdot 8) = 36 + 32 = 68$
3. $56 + 42 = 98$
4. $35 + 20 = 55$
5. $60 + 21 = 81$
6. $240 + 36 = 276$
7. $320 + 24 = 344$
8. $420 + 48 = 468$
9. $3x + 18$
10. $5x + 35$
11. $8x - 32$
12. $6x - 60$
13. $4x + 32$
14. $5x + 10$
15. $-7x - 7$
16. $-4y - 12$
17. $-3y + 15$
18. $-5b + 20$
19. $-x - 6$
20. $-x - 7$
21. $-x + 4$
22. $x + 3$
23. $x^2 + 3x$
24. $4x^2 + 8x$
25. $-5x^2 + 7x$
26. $-2x^2 + 6x$

When the Distributive Property is used to reverse, it is called factoring. Factoring changes a sum of terms (no parentheses) to a product (with parentheses.)

$$ab + ac = a(b + c)$$

To factor: Write the common factor of all the terms outside of the parentheses. Place the remaining factors of each of the original terms inside of the parentheses.

For additional examples and practice, see the *Core Connections, Course 1* Checkpoint 8A materials.

Example 4

$4x + 8 = 4 \cdot x + 4 \cdot 2$
$= 4(x + 2)$

Example 5

$6x^2 - 9x = 3x \cdot 2x - 3x \cdot 3$
$= 3x(2x - 3)$

Example 6

$6x + 12y + 3 = 3 \cdot 2x + 3 \cdot 4y + 3 \cdot 1$
$= 3(2x + 4y + 1)$

Problems

Factor each expression below by using the Distributive Property in reverse.

1. $6x + 12$
2. $5y - 10$
3. $8x + 20z$
4. $x^2 + xy$
5. $8m + 24$
6. $16y + 40$
7. $8m - 2$
8. $25y - 10$
9. $2x^2 - 10x$
10. $21x^2 - 63$
11. $21x^2 - 63x$
12. $15y + 35$
13. $4x + 4y + 4z$
14. $6x + 12y + 6$
15. $14x^2 - 49x + 28$
16. $x^2 - x + xy$

Answers

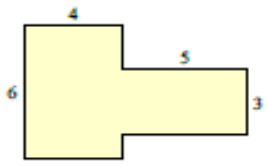
1. $6(x + 2)$
2. $5(y - 2)$
3. $4(2x + 5z)$
4. $x(x + y)$
5. $8(m + 3)$
6. $8(2y + 5)$
7. $4(2m - 1)$
8. $5(5y - 2)$
9. $2x(x - 5)$
10. $21(x^2 - 3)$
11. $21x(x - 3)$
12. $5(3y + 7)$
13. $4(x + y + z)$
14. $6(x + 2y + 1)$
15. $7(2x^2 - 7x + 4)$
16. $x(x - 1 + y)$

Determining Rectilinear Area

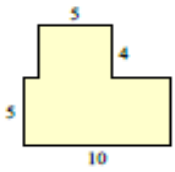
Name:

Find the total area of each shape. Measurement is in millimeters (mm). Not to scale.

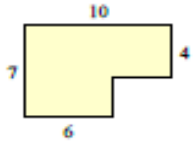
1)



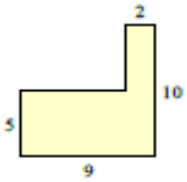
2)



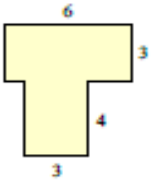
3)



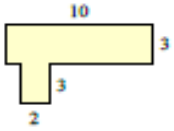
4)



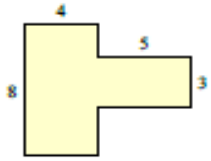
5)



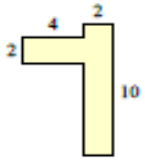
6)



7)



8)



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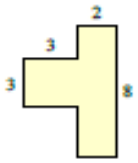
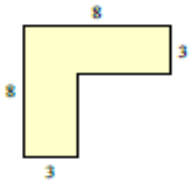


10)



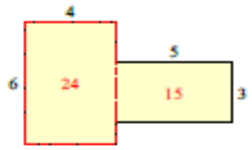
Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

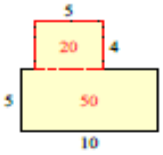
Determining Rectilinear Area Name: **Answer Key**

Find the total area of each shape. Measurement is in millimeters (mm). Not to scale.

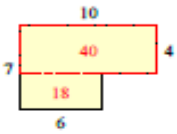
1)



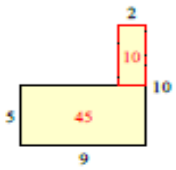
2)



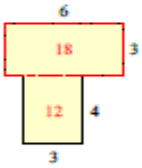
3)



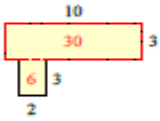
4)



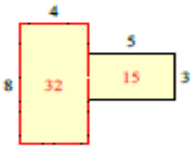
5)



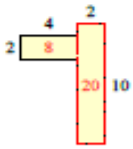
6)



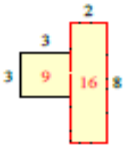
7)



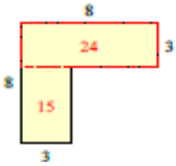
8)



9)



10)



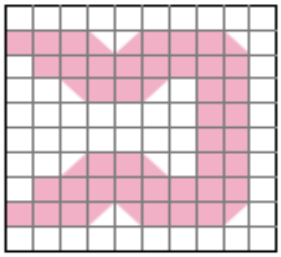
Answers

1. **39 mm²**
2. **70 mm²**
3. **58 mm²**
4. **55 mm²**
5. **30 mm²**
6. **36 mm²**
7. **47 mm²**
8. **28 mm²**
9. **25 mm²**
10. **39 mm²**

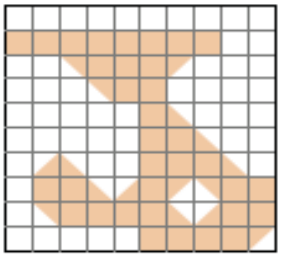
Determining Area with Partial Blocks Name:

Find the area of each shaded section. Each block is 1 square unit (u).

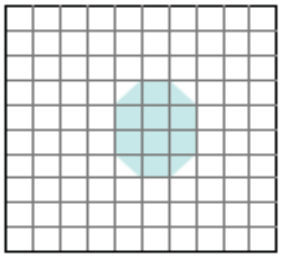
1)



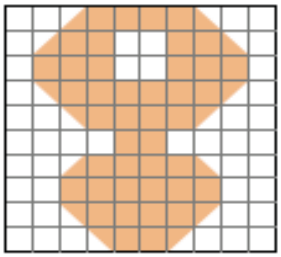
2)



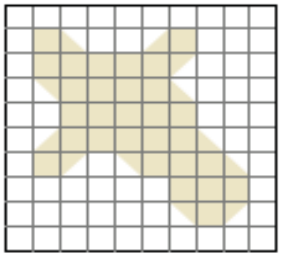
3)



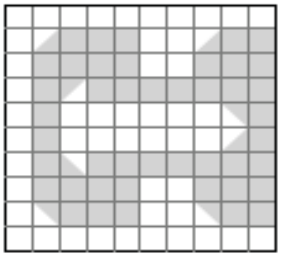
4)



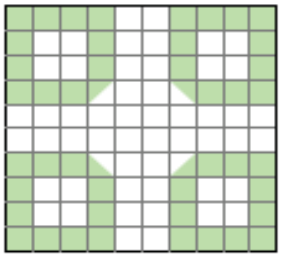
5)



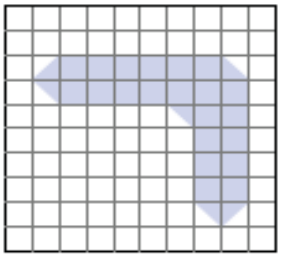
6)



7)



8)



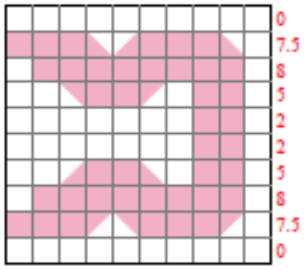
Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

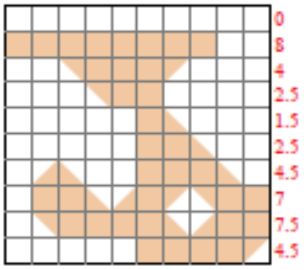
Determining Area with Partial Blocks Name: **Answer Key**

Find the area of each shaded section. Each block is 1 square unit (u).

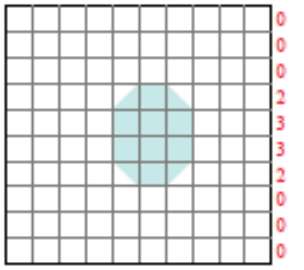
1)



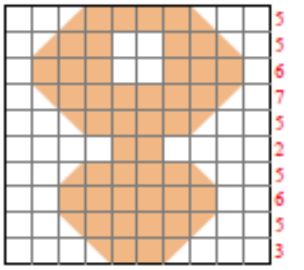
2)



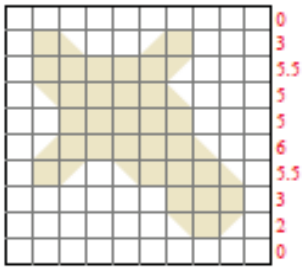
3)



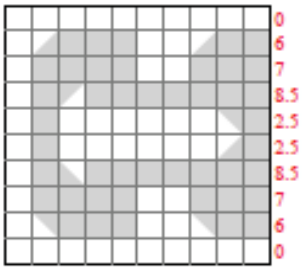
4)



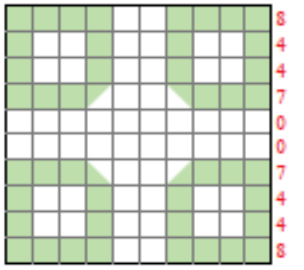
5)



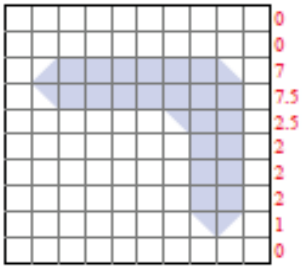
6)



7)



8)



Answers

1. **45 u²**
2. **42 u²**
3. **10 u²**
4. **49 u²**
5. **35 u²**
6. **48 u²**
7. **46 u²**
8. **24 u²**

Name_____ Period_____ Date_____

Shape Designs

Directions: Complete all the steps A through E and answer the questions that follow which are based on the shape you make:

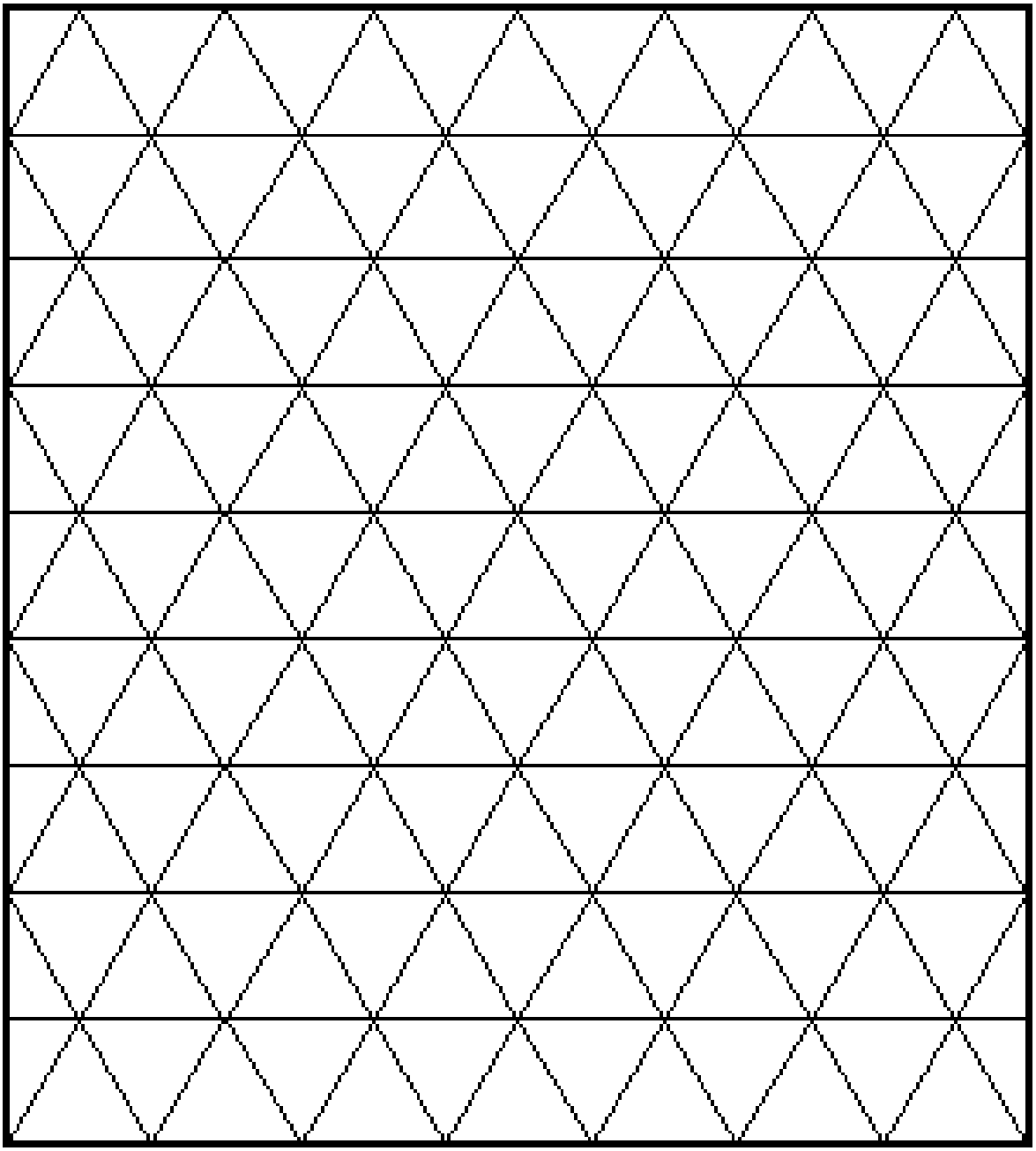
A. Place a yellow hexagon in the middle of the paper.
B. Place a red trapezoid on the top and bottom of the hexagon matching the side opposite of the longest side of the trapezoid with one side of the hexagon.
C. Place one green triangle on each end of the trapezoids so that the sides touch. You should use 4 green triangles.
D. Use 2 blue rhombus shaped pieces to connect one green triangle on the top with one on the bottom.
E. Repeat step 4 for the other green triangles.

Questions:

1. Name the shape you have made.

2. Complete the table.

	What fraction of the shape is this color?	What percent of the shape is this color?
Green		
Blue		
Red		
Yellow		



Now You Be the Designer

Use the four shapes and their colors to design a figure on the triangle grid provided on the back of this page.

- ✓ Calculate the fractional part of each color and the percent of each color.
- ✓ Write out directions for another group to be able to make the same shape that you did.
- ✓ Switch directions with another group and see if they get the shape you made.

	What fraction of the shape is this color?	What percent of the shape is this color?
Green		
Blue		
Red		
Yellow		