



Math Summer Learning Packet

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The Math Summer Prep is for newly identified HC students who want to bridge their math skills. Students are working two levels above grade level. For example, a student who has completed fourth grade and starts as a fifth-grade student will study seventh grade math.

Grade 5 Summer Math Guide

❖ How to use this Summer Math Learning Packet

This optional packet provides practice with key math concepts for next year. Please support your child as they use these math resources. Your child does not need to complete every question. The packet is organized by topic and includes Parent Letters with QR codes linked to matching math activities on the SPS HC website. Choose the activities that are most helpful for your child.

❖ Preparing for Math 7 in 5th Grade

To support a strong and confident start in math, it's helpful if students are comfortable with the following:

Fraction Understanding

- Recognizing equivalent fractions/Simplifying fractions
- Finding common denominators
- Converting between mixed numbers and fractions greater than 1

Operations with Fractions

- Adding and subtracting fractions and mixed numbers
- Beginning multiplication and division with fractions

Multi-Digit Operations

- Adding and subtracting multi-digit numbers, including decimals to the hundredths
- Multiplying & dividing multi-digit numbers (including decimals to the hundredths)

Coordinate Plane

- Graphing points on a coordinate plane (all four quadrants)

Measurement

- Converting measurements (customary or metric)

Geometry

- Classifying 2-dimensional figures
- Finding area and surface area of shapes such as prisms and pyramids

Data & Statistics

- Finding and interpreting mean, median, and mode

❖ Suggested Schedule

Do what works best for your family. While the printable packet and interactive resources do provide some feedback, having an adult there to further explain will help a lot!

Sample 15 min. Schedule:

5 min – warm up with a game* or watch a video to refine a skill

10 min – interactive website or packet work **OR** play a game for 15 minutes*

**If your student does not yet recall multiplication and division facts with fluency (10 – 15 second recall), please have them review their facts daily. The online resource *Multiplication by Heart* has an excellent approach. See link under *Interactive Websites* for details.*

❖ Resources:

Videos: These short videos (~ 5min.) help students “warm up” to math work.

Games: These are games that you can obtain at a store or access online.

Interactive Websites: Khan Academy, Multiplication by Heart, and Polypad.

enVision website: enVision math website provides home activities for families.

Grade 6 https://media.pk12ls.com/curriculum/math/family_engage_cc/q06_welcome_en.html

Grade 5 https://media.pk12ls.com/curriculum/math/family_engage_cc/q05_welcome_en.html

Math Tool Kit: Quick reference sheets students could use in the summer and during the school year.

Grade 5

Grade 5 math toolkit

MULTIPLICATION CHART

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

PRIME AND COMPOSITE NUMBERS

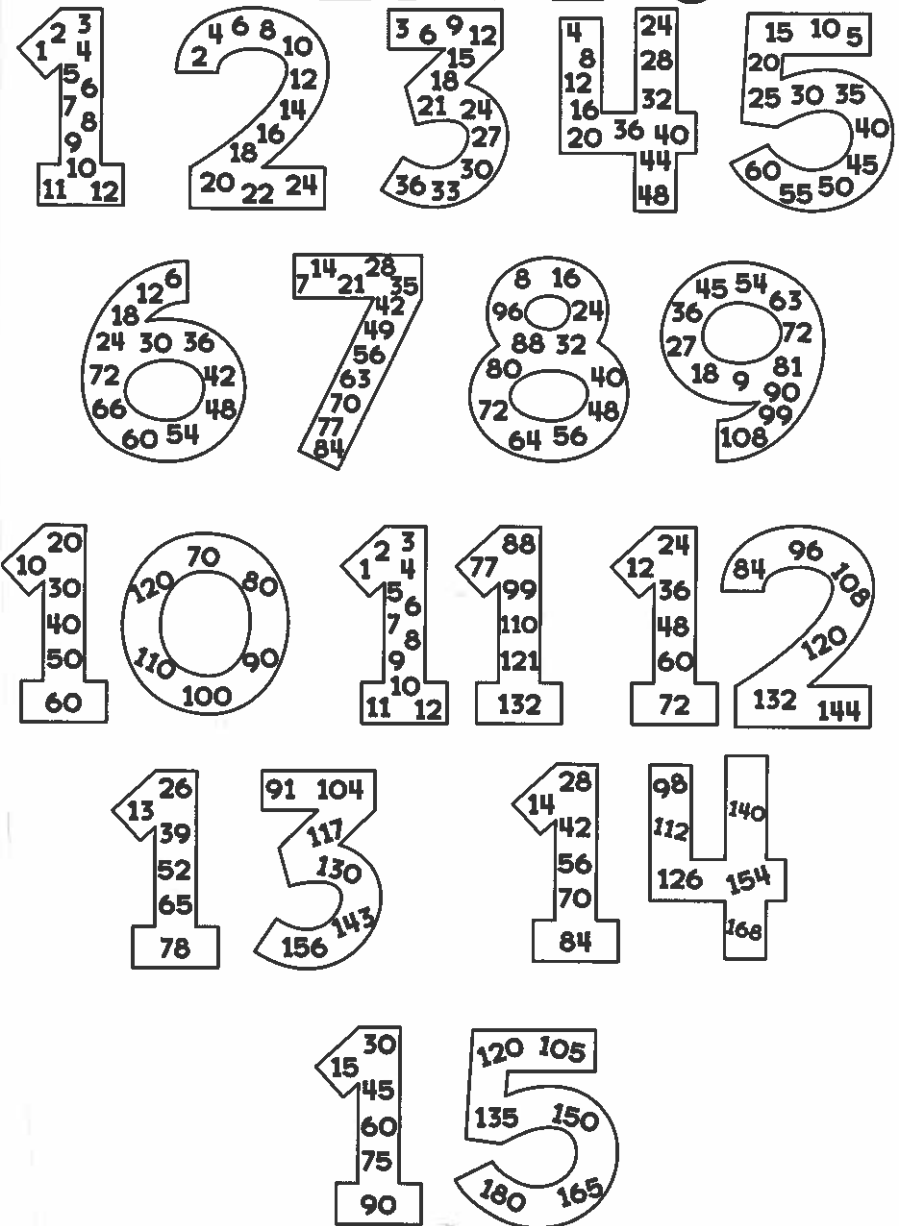
1♦	2★	3★	4	5★	6	7★	8	9	10
11★	12	13★	14	15	16	17★	18	19★	20
21	22	23★	24	25	26	27	28	29★	30
31★	32	33	34	35	36	37★	38	39	40
41★	42	43★	44	45	46	47★	48	49	50
51	52	53★	54	55	56	57	58	59★	60
61★	62	63	64	65	66	67★	68	69	70
71★	72	73★	74	75	76	77	78	79★	80
81	82	83★	84	85	86	87	88	89★	90
91	92	93	94	95	96	97★	98	99	100

KEY		
♦ - Neither	★ - Prime	No symbol - Composite

DIVISIBILITY RULES

DIVISIBLE BY:	RULE:
1	Any integer
2	Last digit is even (0, 2, 4, 6, 8)
3	The sum of the digits are divisible by 3
4	The last two digits are divisible by 4
5	The last digit is 0 or 5
6	The number is both even and divisible by 3
7	Double the last digit of the number. Subtract it from the remaining digits. The result must be divisible by 7.
8	The last three digits is divisible by 8.
9	The sum of the digits is divisible by 9
10	The last digit is 0

MULTIPLES





POWERS OF 10

Power	Standard Form
10^0	1
10^1	10
10^2	100
10^3	1,000
10^4	10,000
10^5	100,000
10^6	1,000,000
10^7	10,000,000
10^8	100,000,000
10^9	1,000,000,000
10^{10}	10,000,000,000

Multi-digit whole numbers, decimal addition, subtraction

Scan this QR Code to access additional online resources



DECIMAL OPERATIONS

OPERATION:	STEPS:
<p>ADDING AND SUBTRACTING DECIMALS</p>	<ul style="list-style-type: none"> Line up the decimal points and move the decimal point into the answer. Write zeros to make the columns even. Add or subtract as you normally would.
<p>MULTIPLYING DECIMALS</p>	<ul style="list-style-type: none"> Estimate your answer. Multiply as if both factors are whole numbers (You do not need to line up the decimals). Count the decimal places in both factors to find out how many places are needed in the product.
<p>DIVIDING DECIMALS BY WHOLE NUMBERS</p>	<ul style="list-style-type: none"> Set-up the division problem as a long division problem. Move the decimal point up into the quotient. Divide as you normally would.
<p>DIVIDING DECIMALS BY DECIMALS</p>	<ul style="list-style-type: none"> Rewrite the divisor as a whole number by moving the decimal point to the right. Move the decimal in the dividend the same number of place. Move the decimal point up into the quotient. Divide as you normally would

FRACTION OPERATIONS

OPERATION:	STEPS:
<p>+ -</p>	<p>Rewrite fractions so they have the same denominators. Add or subtract the numerators. Keep the denominators the same.</p>
<p>X</p>	<p>Multiply the numerators, multiply the denominators</p>
<p>÷</p>	<p>Keep the dividend the same, change division to multiplication, change the divisor to the reciprocal.</p>





Additional Practice 2-4

Add Greater Numbers

Another Look!



You can add two or more numbers when you line up the numbers by place value. Add one place at a time.

Find $3,456 + 2,139 + 5,547$.

Estimate: $3,000 + 2,000 + 6,000 = 11,000$

Step 1

Line up the numbers by place value.

Add the ones.

Regroup if needed.

$$\begin{array}{r} 3,4\overset{2}{5}6 \\ 2,139 \\ + 5,547 \\ \hline 2 \end{array}$$

Regroup 22 ones as 2 tens and 2 ones.

Step 2

Add the tens and hundreds.

Regroup if needed.

$$\begin{array}{r} 3,4\overset{1}{5}6 \\ 2,139 \\ + 5,547 \\ \hline 142 \end{array}$$

Keep digits in columns as you add.

Step 3

Add the thousands.

Regroup for ten thousands if necessary.

$$\begin{array}{r} 3,4\overset{1}{5}6 \\ 2,139 \\ + 5,547 \\ \hline 11,142 \end{array}$$

11,142 is reasonable because it is close to the estimate of 11,000.

For 1–8, estimate, and then find each sum.

1.
$$\begin{array}{r} 9,945 \\ + 3,343 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 12,566 \\ + 5,532 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 387,969 \\ + 562,031 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 629,979 \\ 294,116 \\ + 75,905 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 227,418 \\ 196,735 \\ + 48,062 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 82,011 \\ 96,489 \\ + 76,988 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 126,267 \\ 15,809 \\ + 8,764 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 45,101 \\ 35,099 \\ + 10,000 \\ \hline \end{array}$$

To check if your answer is reasonable, see if it is close to your estimate.





Additional Practice 2-6

Subtract Whole Numbers

Another Look!



To subtract whole numbers with the standard algorithm, subtract each place. Start with ones and regroup when necessary.

Find $7,445 - 1,368$.Estimate: $7,000 - 1,000 = 6,000$

Step 1

$$\begin{array}{r} 7,445 \\ - 1,368 \\ \hline 7 \end{array}$$

Regroup: 4 tens
5 ones = 3 tens
15 ones

Subtract 8 ones from
15 ones.

Step 2

$$\begin{array}{r} 7,445 \\ - 1,368 \\ \hline 77 \end{array}$$

Regroup: 4 hundreds
3 tens = 3 hundreds
13 tens

Subtract 6 tens from
13 tens.

Step 3

$$\begin{array}{r} 7,445 \\ - 1,368 \\ \hline 077 \end{array}$$

Subtract 3 hundreds
from 3 hundreds.

Step 4

$$\begin{array}{r} 7,445 \\ - 1,368 \\ \hline 6,077 \end{array}$$

Subtract 1 thousand
from 7 thousands.

Check for
reasonableness: The
difference 6,077 is
reasonable because
it is close to the
estimate of 6,000.

For 1–8, find the difference. Estimate to check if your answer is reasonable.

1.
$$\begin{array}{r} 8,737 \\ - 6,754 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 411,765 \\ - 402,120 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 43,429 \\ - 17,101 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 952,746 \\ - 184,524 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 17,863 \\ - 3,747 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 513,363 \\ - 382,895 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 4,226 \\ - 2,958 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 67,451 \\ - 29,609 \\ \hline \end{array}$$



Additional Practice 2-8 Reasoning

Another Look!

In a week, a farmer collected 3,978 red apples and 2,504 green apples. He sold a total of 4,856 apples. He took the rest of the apples to the Farmer's Market. How many apples did the farmer have left for the Farmer's Market?

Tell how you can use quantitative reasoning to find the answer.

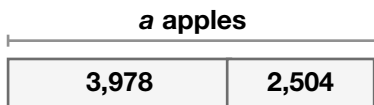
- I can identify the quantities given.
- I can draw diagrams to show relationships.
- I can give the answer using the correct unit.

Identify quantities and the relationships between them to solve.

When you use reasoning, you show how quantities are related.



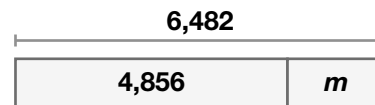
First find a , the number of apples the farmer collected.



$$3,978 + 2,504 = 6,482$$

The farmer collected 6,482 apples.

Then find m , the number of apples left for the Farmer's Market.



$$6,482 - 4,856 = 1,626$$

1,626 apples were left.

Reasoning

A census said that there were 659,000 French Creole speakers in the United States. There were 186,000 more Arabic speakers than French Creole speakers. How many Arabic speakers were there? Use Exercises 1–2 to answer the question.

1. What quantities are given in the problem, and what do the numbers mean?

2. What is the relationship between the quantities? Complete the bar diagram to find a , the number of Arabic speakers. Write and solve an equation.



Performance Task

Music

The table shows how many times a song was downloaded the first four days it was on sale. How many more times was it downloaded on days 1 and 2 combined than on days 3 and 4 combined?

Day	Times Downloaded
1	98,273
2	313,280
3	106,548
4	270,463

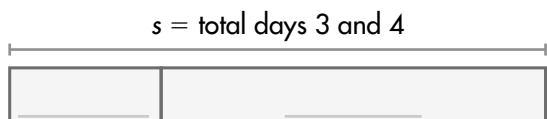
3. Reasoning What quantities are given in the problem and what do the numbers mean?

When you use reasoning, you identify the quantities given and their relationships.

4. Make Sense and Persevere What strategy can you use to solve the problem?

5. Model with Math Complete the bar diagrams to show how to represent the hidden questions. Then, write and solve equations.

6. Model with Math How many more times was the song downloaded on days 1 and 2 combined than on days 3 and 4 combined? Complete the bar diagram and write and solve an equation to find the difference, d .



Name _____

Add and Subtract Decimals to Hundredths

Dear Family,

In this topic, your student will develop proficiency with adding and subtracting decimals. These skills will enable your student to solve mathematical and real-world problems efficiently. These skills will also help your student estimate sums and differences in order to determine the reasonableness of solutions.

Complete the following activity together to help your student practice estimating and calculating sums and differences of decimals to hundredths.

Rolling Decimals

Materials: 1 number cube (labeled 1–6)

Step 1 Roll a number cube five times. Use the digits rolled to write two decimal numbers, such as 2.3 and 42.5.

Step 2 Write an addition sentence and a subtraction sentence using the two decimal numbers. For example, $2.3 + 42.5$ and $42.5 - 2.3$. Subtract the lesser decimal from the greater decimal.

Step 3 Estimate the answer to each problem. For example, you might round 42.5 to 43 and 2.3 to 2, and then perform the operations. Use a calculator or paper and pencil to find the actual answer for each problem. Compare the actual answers with your estimates.

Step 4 Take turns creating numbers and estimating the sum and difference of the numbers. Then, play this game together: Choose an estimation goal, such as 100 or 25.5. Write an addition sentence or a subtraction sentence with two decimal numbers that will result in a number as close to the estimate as possible.

Observe Your Child

For each estimated sum and difference, ask your child to compare the estimate to the actual answer and explain why the estimate makes sense.



Practice



Video



Tools

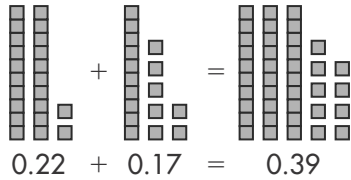


Games

Additional Practice 2-3

Use Models to Add and Subtract Decimals

Another Look!

Find $0.22 + 0.17$.

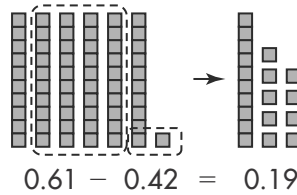
Step 1

Show 0.22 and 0.17 with place-value blocks.

Step 2

Combine the blocks.
Regroup if possible.

So, $0.22 + 0.17 = 0.39$.

Find $0.61 - 0.42$.

Step 1

Show 0.61 with place-value blocks.

Step 2

Regroup if necessary. Remove 0.42.

So, $0.61 - 0.42 = 0.19$.

Count all the tenths and hundredths blocks to find the sum and circle and remove blocks to find the difference.



In **1–8**, use place-value blocks to add or subtract.

1. $0.27 + 0.19 =$ _____

2. $0.39 - 0.14 =$ _____

3. $0.68 - 0.24 =$ _____

4. $0.88 + 0.25 =$ _____

5. $2.88 - 0.59 =$ _____

6. $1.24 + 0.44 =$ _____

7. $0.96 + 1.05 =$ _____

8. $0.52 - 0.19 =$ _____





Additional Practice 2-4 Add Decimals

Another Look!

A scientist used 0.62 milliliter of solution for an experiment and 0.56 milliliter of solution for a different experiment. How much solution did he use for the two experiments?



You can estimate first to be sure that your answer is reasonable. Both 0.62 and 0.56 are close to 0.5. So the answer will be close to $0.5 + 0.5 = 1$.

Write the numbers, lining up the digits by place value. Include the zeros as place holders in the ones place.

ones .	tenths	hundredths
0 .	6	2
+ 0 .	5	6
<hr/>		

Add by place value.

ones .	tenths	hundredths	
0 .	6	2	
+ 0 .	5	6	
<hr/>			
.	0	8	(0.02 + 0.06)
1 .	1		(0.6 + 0.5)
<hr/>			
1 .	1	8	

The scientist used 1.18 milliliters of solution.

Leveled Practice In **1–11**, use place value and properties of operations to find the sum.

1. $55.25 + 298 + 16.3$

$$\begin{array}{r} 55.25 \\ 2.98 \\ + 16.30 \\ \hline \end{array}$$

2. 37.2
 $103.$
+ 8.52

3. 2.97
+ 0.35

4. 5.62
+ 7.99

5. 23.59
+ 6.56

6. $13 + 7.69$

7. $41.5 + 12.61$

8. $39.48 + 26.7$

9. $67.55 + 0.83$

10. $88.8 + 4.27 + 78.95$

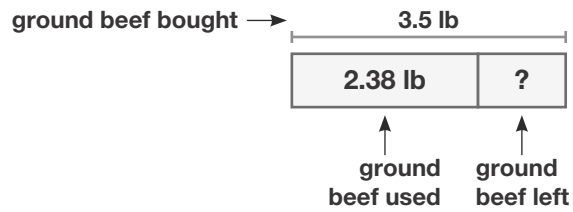
11. $2.94 + 45 + 58.06$



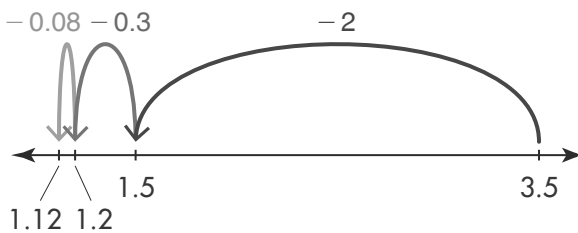
Additional Practice 2-5 Subtract Decimals

Another Look!

Mr. Montoya bought 3.5 pounds of ground beef. He used 2.38 pounds to make hamburgers. How much ground beef does he have left?



You can use a number line to subtract.



You can subtract using partial differences.

Find $3.5 - 2.38$

$$\begin{array}{r} 3.50 \\ - 2.00 \\ \hline 1.50 \\ - .30 \\ \hline 1.20 \\ - .08 \\ \hline 1.12 \end{array}$$

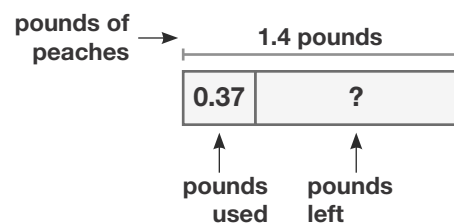
subtract 2 ones

subtract 3 tenths

subtract 8 hundredths

$$3.5 - 2.38 = 1.12$$

1. Anya bought 1.4 pounds of peaches. She used 0.37 pound in a fruit salad. How much is left? Use the bar diagram to help you.



Leveled Practice In 2-7, find the difference.

2. $82.7 - 5.59$

3. $43.3 - 12.82$

4. $7.28 - 4.9$

5. $\$72.35 - \6.19

6. $1.24 - 0.92$

7. $6.04 - 3.48$



Whole number, decimal multiplication

Scan this QR Code to access additional online resources



Name _____

Fluently Multiply Multi-Digit Whole Numbers

Dear Family,

Your student is learning to fluently multiply multi-digit whole numbers using the standard algorithm. He or she will learn to explain patterns in the number of zeros of the product when multiplying a number by powers of 10. Your student will also apply his or her understanding of place value to estimate products.

This topic also uses money as a real-world context to connect mathematics to problems arising in everyday life.

Here are two activities you can complete with your student to help him or her review multiplication and learn about estimating products.

Reviewing Basic Facts

Step 1 Review basic multiplication facts.

Step 2 Display
$$\begin{array}{r} 142 \\ \times 63 \\ \hline \end{array}$$

Have your student explain how to multiply a three-digit number by a two-digit number.

About How Much?

Materials: 1 number cube (labeled 1-6)

Step 1 Have your student create one 3-digit number and one 2-digit number by rolling the number cube five times.

Step 2 Have your student write a multiplication problem using the numbers from Step 1.

Step 3 Have your student estimate the product using rounding or compatible numbers. For example, 136×32 is close to 140×30 , and $140 \times 30 = 4,200$. Take turns creating new problems by using the number cube to create more 2- and 3-digit numbers.

Observe Your Child

Have your student explain how they know each estimate is reasonable.



Additional Practice 3-3

Multiply by 1-Digit Numbers

Another Look!



The steps below show one way to multiply 3-digit numbers by 1-digit numbers.

Step 1

Multiply the ones.
Regroup if necessary.

$$\begin{array}{r} 1 \\ 154 \\ \times 4 \\ \hline 6 \end{array}$$

Step 2

Multiply the tens.
Add any extra tens.
Regroup if necessary.

$$\begin{array}{r} 21 \\ 154 \\ \times 4 \\ \hline 16 \end{array}$$

Step 3

Multiply the hundreds.
Add any extra hundreds.

$$\begin{array}{r} 21 \\ 154 \\ \times 4 \\ \hline 616 \end{array}$$

For 1–16, find each product.

Remember to regroup if necessary.



1.
$$\begin{array}{r} 13 \\ \times 3 \\ \hline \square \square \end{array}$$

2.
$$\begin{array}{r} \square \\ 17 \\ \times 7 \\ \hline \square \square \square \end{array}$$

3.
$$\begin{array}{r} \square \\ 741 \\ \times 3 \\ \hline \square \square \square \square \end{array}$$

4.
$$\begin{array}{r} \square \square \\ 587 \\ \times 3 \\ \hline \square \square \square \square \end{array}$$

5.
$$\begin{array}{r} 413 \\ \times 6 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 625 \\ \times 6 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 36 \\ \times 5 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 731 \\ \times 9 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 88 \\ \times 5 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 52 \\ \times 8 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 352 \\ \times 3 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 159 \\ \times 5 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 164 \\ \times 5 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 19 \\ \times 8 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 478 \\ \times 2 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 862 \\ \times 7 \\ \hline \end{array}$$



Additional Practice 3-4

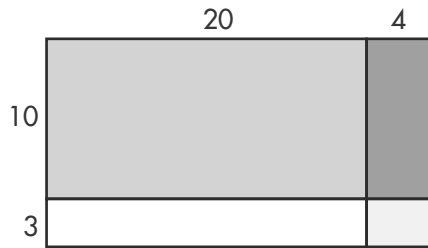
Multiply 2-Digit by 2-Digit Numbers

Another Look!

There are 24 cars in the Speedy Cup Series. Each car has 13 workers in the pit area. How many pit-area workers are at the race?



There is more than one way to multiply.



Use Partial Products

$$\begin{array}{r}
 24 \\
 \times 13 \\
 \hline
 12 \\
 60 \\
 40 \\
 + 200 \\
 \hline
 312
 \end{array}$$

Use the Standard Algorithm

Multiply by the ones.
Regroup if necessary.

$$\begin{array}{r}
 1 \\
 24 \\
 \times 13 \\
 \hline
 72
 \end{array}$$

Multiply by the tens.
Regroup if necessary.

$$\begin{array}{r}
 1 \\
 24 \\
 \times 13 \\
 \hline
 72 \\
 + 240 \\
 \hline
 312
 \end{array}$$

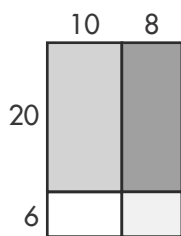
Add the partial products.

There are 312 pit-area workers at the race.

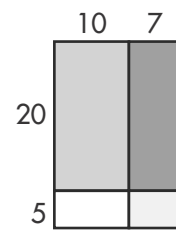
For 1–10, use the standard algorithm or partial products to find the product. Draw area models as needed.

You can use rounding or compatible numbers to estimate and check if your answer is reasonable.

1.
$$\begin{array}{r}
 18 \\
 \times 26 \\
 \hline
 \square\square\square \\
 + \square\square 0 \\
 \hline
 \square\square\square
 \end{array}$$



2.
$$\begin{array}{r}
 17 \\
 \times 25 \\
 \hline
 \square\square\square \\
 + \square\square 0 \\
 \hline
 \square\square\square
 \end{array}$$



3.
$$\begin{array}{r}
 88 \\
 \times 32 \\
 \hline
 \end{array}$$

4.
$$\begin{array}{r}
 53 \\
 \times 48 \\
 \hline
 \end{array}$$

5.
$$\begin{array}{r}
 18 \\
 \times 77 \\
 \hline
 \end{array}$$

6.
$$\begin{array}{r}
 67 \\
 \times 27 \\
 \hline
 \end{array}$$

7.
$$\begin{array}{r}
 67 \\
 \times 34 \\
 \hline
 \end{array}$$

8.
$$\begin{array}{r}
 91 \\
 \times 46 \\
 \hline
 \end{array}$$

9.
$$\begin{array}{r}
 56 \\
 \times 31 \\
 \hline
 \end{array}$$

10.
$$\begin{array}{r}
 67 \\
 \times 57 \\
 \hline
 \end{array}$$

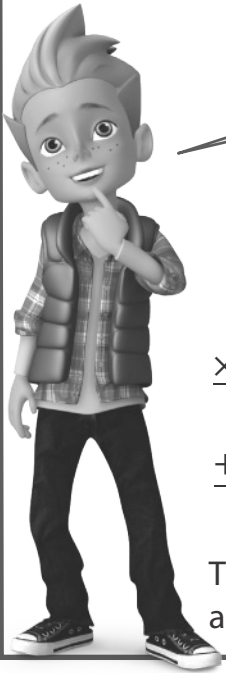


Additional Practice 3-5

Multiply 3-Digit by 2-Digit Numbers

Another Look!

Last year, 23 students in fifth grade were assigned a kindergarten student as a reading buddy. Each student read for 1 hour during each reading session and for a total of 128 sessions. How many hours in all did the fifth-grade students read?



Estimate: 130 times 20 is 2,600

Step 1

Multiply by the ones.
Regroup as needed.

$$\begin{array}{r} 128 \\ \times 23 \\ \hline 1 \\ 384 \\ + 2,560 \\ \hline 2,944 \end{array}$$

$$\begin{array}{r} 128 \\ \times 3 \\ \hline 384 \end{array}$$

Step 2

Multiply by the tens.
Regroup as needed.

$$\begin{array}{r} 128 \\ \times 20 \\ \hline 2,560 \end{array}$$

Step 3

Add to get the final product.

The fifth-grade students read for 2,944 hours in all. The answer is reasonable because it is close to the estimate.

In 1–10, find each product. Estimate to check that your answer is reasonable.

1.
$$\begin{array}{r} 282 \\ \times 19 \\ \hline \end{array}$$

- ← Multiply by the ones.
- ← Multiply by the tens.
- ← Add the partial products.

2.
$$\begin{array}{r} 538 \\ \times 46 \\ \hline \end{array}$$

- ← Multiply by the ones.
- ← Multiply by the tens.
- ← Add the partial products.

3.
$$\begin{array}{r} 395 \\ \times 76 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 83 \\ \times 57 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 628 \\ \times 33 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 154 \\ \times 35 \\ \hline \end{array}$$

7. 682×25

8. 324×71

9. 158×6

10. 16×29



Name _____

Use Models and Strategies to Multiply Decimals

Dear Family,

Your student is learning to multiply whole numbers and decimals to hundredths. He or she will learn to represent the mathematical reasoning involved in multiplication situations using objects and models. Your student will also learn how to use patterns to place the decimal point when a decimal is multiplied by a power of 10. He or she will apply his or her understanding of place value to estimate decimal products.

This topic also uses money as a real-world context to connect mathematics to problems arising in everyday life.

Here is an activity you can complete with your student to help him or her learn about estimating products.

About How Much?

Materials: grocery items with prices marked

Step 1 Display several different grocery items with prices marked.

Step 2 Have your student choose one of the items and the number of that item that he or she wishes to buy.

Step 3 Have your student estimate about how much his or her purchase will cost. He or she may round to whole numbers or use compatible numbers to help estimate. For example, $4 \times \$2.89$ is close to 4×3 , and $4 \times 3 = 12$. The total cost will be about \$12. Similarly, to estimate $16 \times \$3.18$, you can use 15×3 , and $15 \times 3 = 45$. The total cost will be about \$45.

Observe Your Child

Have your student explain how knowing a basic multiplication fact like $3 \times 4 = 12$ can help them to multiply 0.3×0.4 .



Additional Practice 4-3

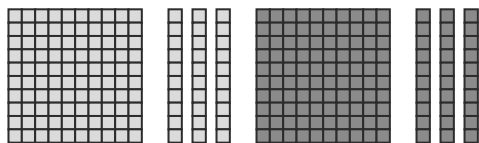
Use Models to Multiply a Decimal and a Whole Number

Another Look!

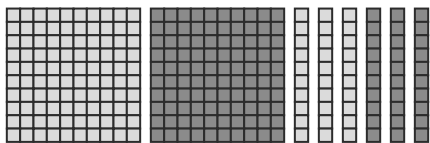
A nature preserve has two hiking trails. Trail 1 is 1.3 miles long. Trail 2 is twice as long as Trail 1. How long is Trail 2?

Use place-value blocks to find the product.

Show 2 groups of 1.3.



Combine the blocks.



So, $1.3 \times 2 = 2.6$. Trail 2 is 2.6 miles long.

You can use estimation to check your work. $1 \times 2 = 2$, so your answer to 1.3×2 will be about 2.



In **1** and **2**, find the product. Use place-value blocks for help.

1. $0.45 \times 3 =$

2. $0.08 \times 6 =$

In **3–10**, find the product. Use models to help, if needed.

3. 12×0.08

4. 1.75×4

5. 0.85×3

6. 6×0.12

7. 3×0.33

8. 0.45×10^2

9. 3×2.89

10. 7.6×2





Additional Practice 4-4

Multiply a Decimal and a Whole Number

Another Look!

Travis can read a book chapter in 2.3 hours. The book has 18 chapters. How long will it take Travis to read the book?

Multiply as with whole numbers.

$$\begin{array}{r} 23 \\ \times 18 \\ \hline 184 \\ + 230 \\ \hline 414 \end{array}$$

So, $23 \times 18 = 414$. Now think about the number of decimal places to find 2.3×18 .

Since $2 \times 18 = 36$ and $3 \times 18 = 54$, the product must be between 36 and 54.

41.4

It will take Travis 41.4 hours.

41.4 is reasonable because $2 \times 20 = 40$.



In **1** and **2**, use number sense to find the products.

1. $46 \times 3 = 38$

$4.6 \times 3 = \underline{\hspace{2cm}}$

$0.46 \times 3 = \underline{\hspace{2cm}}$

2. $17 \times 15 = 255$

$17 \times 1.5 = \underline{\hspace{2cm}}$

$17 \times 0.15 = \underline{\hspace{2cm}}$

In **3–14**, find each product.

3. $\begin{array}{r} 27.4 \\ \times 7 \\ \hline \end{array}$

4. $\begin{array}{r} 336 \\ \times 0.4 \\ \hline \end{array}$

5. $\begin{array}{r} 88 \\ \times 1.8 \\ \hline \end{array}$

6. $\begin{array}{r} 4.02 \\ \times 9 \\ \hline \end{array}$

7. 1.7×12

8. 105×0.4

9. 1.4×32

10. 0.89×21

11. 4.4×18

12. 0.3×279

13. 95×5.7

14. 46×0.46



Additional Practice 4-6

Multiply Decimals Using Partial Products

Another Look!

If a truck travels 9.5 miles on 1 gallon of fuel, how many miles will the truck travel on 5.6 gallons of fuel?

Step 1

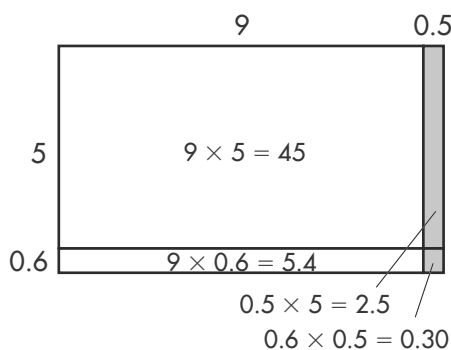
First, estimate your product so you can check for reasonableness.

$$\begin{array}{r} 9.5 \times 5.6 \\ \downarrow \quad \downarrow \\ 10 \times 6 = 60 \end{array}$$

Since 53.2 is close to the estimate 60, the answer is reasonable.

Step 2

Add all the partial products to find the answer. Use an area model if you need help keeping track of them.



$$\begin{array}{r} 9.5 \\ \times 5.6 \\ \hline .6 \times .5 = .30 \\ .6 \times 9 = 5.4 \\ 5 \times .5 = 2.5 \\ 5 \times 9 = 45 \\ \hline 53.20 \end{array}$$

The truck will travel 53.2 miles on 5.6 gallons of fuel.

1. If a truck travels 8.6 miles on 1 gallon of fuel, how many miles will the truck travel on 9.2 gallons of fuel? Estimate. Then, find the product. Is your answer reasonable? Explain.

Estimate:

$$\begin{array}{r} 8.6 \times 9.2 \\ \downarrow \quad \downarrow \\ \square \times \square = \square \end{array}$$

$$\begin{array}{r} 8.6 \\ \times 9.2 \\ \hline \square \square \square \\ \square \square \square \\ \square \square \square \\ + \square \square \square \square \\ \hline \square \square \square \square \end{array}$$

In 2–9, estimate first. Then multiply using partial products. Check that your answer is reasonable.

2. $\begin{array}{r} 0.2 \\ \times 4.6 \end{array}$

3. $\begin{array}{r} 3.9 \\ \times 7.1 \end{array}$

4. $\begin{array}{r} 5.4 \\ \times 0.1 \end{array}$

5. $\begin{array}{r} 15.3 \\ \times 6.4 \end{array}$

6. 9.3×5.8

7. 23.7×4.4

8. 0.8×0.5

9. 13.2×0.3



Name _____

Use Models and Strategies to Divide Whole Numbers

Dear Family,

In this topic, your student continues to develop his or her understanding of division by using number sense and models to divide whole numbers up to 4-digits by 2-digit divisors.

Your student will use strategies such as rounding and compatible numbers to estimate quotients. Then he or she will use patterns and relationships in different methods to calculate the actual quotients.

Here are two activities that you can do with your student to help him or her review division and practice estimating when dividing with greater numbers and two-digit divisors.

Reviewing Basic Facts

Review basic division facts. Have your student name a related multiplication fact for each division fact. For example, if the flash card shows $42 \div 7 = 6$, a related multiplication fact is $6 \times 7 = 42$.

Break It Up

Step 1 Choose a 3-digit number, such as 526.

Step 2 Work with your student to create a story that involves dividing the chosen whole number into a number of equal groups that is greater than 10.

Step 3 Have your student find the number in each group and tell if there is a remainder.

Observe Your Child

Have your student explain how knowing a basic division fact like $12 \div 4 = 3$ can help them find the quotient $1,200 \div 40$.



Practice



Video



Tools



Games

Additional Practice 5-1

Use Patterns and Mental Math to Divide

Another Look!

A school spends \$12,000 on 20 new computers. Each computer costs the same amount. How much does each computer cost?

Find a basic fact, and then use patterns.

A basic fact that can be used for $12,000 \div 20$ is
 $12 \div 2 = 6$.

$$120 \div 20 = 6$$

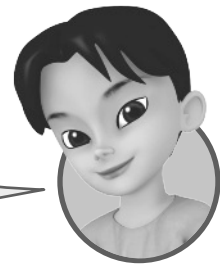
$$1,200 \div 20 = 60$$

$$12,000 \div 20 = 600$$

Multiply to check: $600 \times 20 = 12,000$

Each computer costs \$600.

Use place-value patterns to help find the quotient.



Leveled Practice In **1–16**, use mental math to help solve.

1. $720 \div 90 = 72 \text{ tens} \div 9 \text{ tens} = \underline{\quad}$
2. $4,800 \div 60 = 480 \text{ tens} \div 6 \text{ tens} = \underline{\quad}$
3. $1,200 \div 30 = \underline{\quad} \text{ tens} \div \underline{\quad} \text{ tens} = \underline{\quad}$
4. $25,000 \div 50 = \underline{\quad} \text{ tens} \div \underline{\quad} \text{ tens} = \underline{\quad}$
5. $320 \div 40$
6. $9,000 \div 30$
7. $1,800 \div 90$
8. $2,000 \div 40$
9. $24,000 \div 80$
10. $32,000 \div 40$
11. $3,600 \div 90$
12. $40,000 \div 50$
13. $42,000 \div 60$
14. $5,400 \div 60$
15. $49,000 \div 70$
16. $56,000 \div 80$





Practice



Video



Tools



Games

Additional Practice 5-4

Use Partial Quotients to Divide

Another Look!

A baker made 312 bagels in one day. If he puts 12 bagels in each package, how many packages did he make that day?

$$\begin{array}{r}
 6 \\
 20 \\
 \hline
 12 \overline{)312} \\
 \underline{-240} \quad 20 \text{ groups of } 12 = 240 \\
 72 \\
 \underline{-72} \quad 6 \text{ groups of } 12 = 72 \\
 0 \quad 0 \text{ left over}
 \end{array}$$

Add the partial quotients: $20 + 6 = 26$.

So, the baker made 26 packages of bagels.

You can use multiplication to check your answer.



Leveled Practice In 1–13, use partial quotients to divide. Show your work.

1.
$$\begin{array}{r}
 \square \\
 \square \\
 \hline
 21 \overline{)714} \\
 \underline{-630} \quad \square \text{ groups of } 21 = 630 \\
 84 \\
 \underline{-84} \quad \square \text{ groups of } 21 = 84 \\
 0 \quad \square \text{ left over}
 \end{array}$$

Add the partial quotients: $\square + \square = \square$.

So, $714 \div 21 = \underline{\quad}$.

2. $41 \overline{)533}$

3. $15 \overline{)344}$

4. $39 \overline{)780}$

5. $50 \overline{)700}$

6. $11 \overline{)801}$

7. $24 \overline{)648}$

8. $33 \overline{)396}$

9. $17 \overline{)763}$

10. $23 \overline{)920}$

11. $30 \overline{)810}$

12. $16 \overline{)469}$

13. $53 \overline{)954}$



Additional Practice 5-5

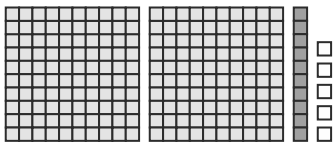
Use Sharing to Divide: Two-Digit Divisors

Another Look!

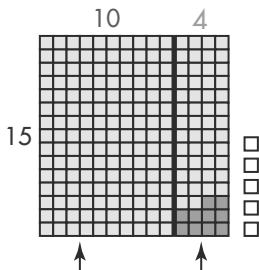
Bo has 215 baseball cards to divide equally among 15 friends. How many cards will each friend get? Will there be any cards left?



Model with place-value blocks.



Regroup the blocks.



$$15 \times 10 = 150 \quad 15 \times 4 = 60$$

$$215 - 150 = 65 \quad 65 - 60 = 5 \text{ left over}$$

$$\begin{array}{r} 14 \\ 15 \overline{)215} \\ \underline{-150} \\ 65 \\ \underline{-60} \\ 5 \end{array}$$

21 tens \div 15 equal groups = 1 ten in each group
 15 groups of 10 = 150
 65 ones \div 15 equal groups = 4 ones in each group
 15 groups of 4 = 60
 5 cards left over

$215 \div 15 = 14 \text{ R}5$ because $15 \times 14 + 5 = 215$.

Each friend will get 14 cards, with 5 cards left over.

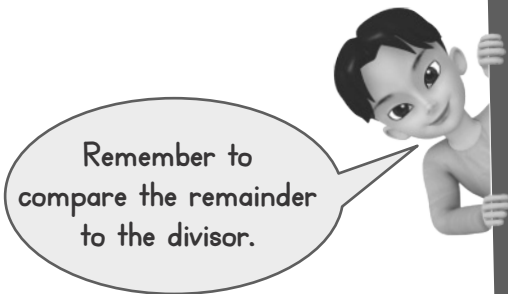
Leveled Practice In 1–8, find the quotient.

1. $\square \square \text{ R } \square$

$$\begin{array}{r} 19 \overline{)359} \\ \underline{-\square\square\square} \\ \square\square\square \\ \underline{-\square\square\square} \\ \square\square \end{array}$$

2. $\square \square$

$$\begin{array}{r} 32 \overline{)512} \\ \underline{-\square\square\square} \\ \square\square\square \\ \underline{-\square\square\square} \\ \square \end{array}$$



Remember to compare the remainder to the divisor.

3. $43 \overline{)746}$

4. $22 \overline{)800}$

5. $70 \overline{)632}$

6. $62 \overline{)779}$

7. $40 \overline{)920}$

8. $29 \overline{)332}$



Name _____

Use Models and Strategies to Divide Decimals

Dear Family,

In this topic, your student is learning to divide decimals by decimals and by whole numbers. He or she will be asked to divide decimals to the hundredths place in a variety of ways, including using models and strategies based on place value and number sense. Your student will also develop proficiency in estimating when dividing decimals.

Try this activity with your student to help him or her practice dividing a decimal number by a whole number.

Share the Money

Materials: real or play dollar bills, dimes, and pennies

Step 1 Pose this problem: Three sisters want to share \$3.48 equally. How can they divide the amount equally? Display 3 dollar bills, 4 dimes, and 8 pennies.

Step 2 Have your student suggest some ideas for sharing the money equally. If needed, remind your student that a dime can be traded for 10 pennies.

Step 3 Work together to find the answer. Then have your student model the solution: Each sister gets 1 dollar bill, 1 dime, and 6 pennies. Have your student record the amount. (\$1.16)

Step 4 Repeat with the amount of \$2.94. (Each sister gets 9 dimes and 8 pennies; \$0.98.) Continue with other amounts of money that can be shared equally.

Observe Your Child

Ask your student to determine if the quotient of $3.6 \div 0.6$ is greater than or less than 3.6. Ask your student how he or she used number sense to decide.



Additional Practice 6-1

Patterns for Dividing with Decimals

Another Look!

Sanjai has 275 pounds of clay. He uses the clay to make 100 identical bowls. How much clay does he use for each bowl?



To divide by 10, or 10^1 , move the decimal point 1 place to the left.

To divide by 100, or 10^2 , move the decimal point 2 places to the left.

$$275 \div 100 = \mathbf{2.75} = 2.75$$

Sanjai uses 2.75 pounds of clay for each bowl.

Leveled Practice In 1–18, use mental math and patterns to complete each problem.

1. $2,500 \div 10 = \underline{\hspace{2cm}}$

$250 \div \underline{\hspace{2cm}} = 25$

$\underline{\hspace{2cm}} \div 10 = 2.5$

$2.5 \div 10 = \underline{\hspace{2cm}}$

2. $20 \div \underline{\hspace{2cm}} = 2$

$20 \div 10^2 = \underline{\hspace{2cm}}$

$20 \div 10^3 = \underline{\hspace{2cm}}$

$20 \div 10^4 = \underline{\hspace{2cm}}$

3. $\underline{\hspace{2cm}} \div 10 = \675

$\$675 \div \underline{\hspace{2cm}} = \67.50

$\$6,750 \div 10^2 = \underline{\hspace{2cm}}$

$\$6,750 \div 10^3 = \underline{\hspace{2cm}}$

4. $9,600 \div 10^1 = \underline{\hspace{2cm}}$

$960 \div 10^1 = \underline{\hspace{2cm}}$

$96 \div 10^1 = \underline{\hspace{2cm}}$

$9.6 \div 10^1 = \underline{\hspace{2cm}}$

5. $\$800 \div \underline{\hspace{2cm}} = \80

$\underline{\hspace{2cm}} \div 10 = \8

$\$8 \div 10 = \underline{\hspace{2cm}}$

$\$0.80 \div 10 = \underline{\hspace{2cm}}$

6. $1,200 \div 10^3 = \underline{\hspace{2cm}}$

$120 \div \underline{\hspace{2cm}} = 12$

$\underline{\hspace{2cm}} \div 10^1 = 1.2$

$1.2 \div 10^2 = \underline{\hspace{2cm}}$

7. $4 \div 100$

8. $15 \div 10^0$

9. $450 \div 10$

10. $60 \div 100$

11. $55 \div 10$

12. $30.9 \div 100$

13. $8,020 \div 10^2$

14. $150 \div 10^3$

15. $16 \div 10^3$

16. $1.8 \div 10^1$

17. $720 \div 100$

18. $3,500 \div 10^4$

Remember that you may need to insert zeros when you move the decimal point to the left.





Practice



Video



Tools



Games

Additional Practice 6-2

Estimate Decimal Quotients

Another Look!

To estimate with decimal division, you can use rounding or compatible numbers.



Estimate $28.4 \div 9.5$.

One Way

Use rounding. Round to the nearest whole number.

$$\begin{array}{r} 28.4 \div 9.5 \\ \downarrow \quad \downarrow \\ 28 \div 10 = 2.8 \end{array}$$

Write the original problem.
Round 28.4 to 28.
Round 9.5 to 10.

Another Way

Use compatible numbers.

$$\begin{array}{r} 28.4 \div 9.5 \\ \downarrow \quad \downarrow \\ 27 \div 9 = 3 \end{array}$$

Write the original problem.
Use compatible numbers.

Leveled Practice In **1** and **2**, complete the work to estimate each quotient.

1. Estimate $52.3 \div 11.4$ using rounding.

$$\begin{array}{r} 52.3 \div 11.4 \\ \downarrow \quad \downarrow \\ 52 \div 10 = \underline{\quad} \end{array}$$

2. Estimate $52.3 \div 11.4$ using compatible numbers.

$$\begin{array}{r} 52.3 \div 11.4 \\ \downarrow \quad \downarrow \\ 55 \div 11 = \underline{\quad} \end{array}$$

In **3–11**, estimate each quotient.

3. $25.1 \div 8$

4. $59.67 \div 11.1$

5. $82.77 \div 7.5$

6. $496.3 \div 98$

7. $1.76 \div 0.91$

8. $13.07 \div 7.41$

9. $41.3 \div 6.76$

10. $81.4 \div 10.03$

11. $384.4 \div 88.1$



Fraction equivalence & all fraction operations

Scan this QR Code to access additional online resources



Name _____

Use Equivalent Fractions to Add and Subtract Fractions

Dear Family,

In this topic, your student is learning how to add and subtract fractions with unlike denominators. He or she will learn how to replace given fractions with equivalent fractions with like denominators. To add $\frac{1}{2}$ and $\frac{1}{3}$, for example, first rename $\frac{1}{2}$ as $\frac{3}{6}$ and $\frac{1}{3}$ as $\frac{2}{6}$, and then add the numerators 3 and 2. The sum of $\frac{1}{2}$ and $\frac{1}{3}$ is $\frac{5}{6}$. Your student will also learn how to estimate sums and differences of fractions.

You can help your student practice renaming fractions as equivalent fractions by playing a game together in which the players add fractions with unlike denominators.

Fraction Add-Up

Materials paper and pencil, index cards

Step 1 Make a set of fraction cards with one fraction shown on each card. Use fractions with numerators of 1 through 5 and denominators of 2 through 6.

Step 2 Player 1 turns over two cards and finds the sum of the two fractions shown. Then Player 2 turns over two cards and finds the sum of those two fractions. The player whose fractions have the greater sum wins.

Another Way to Play

- Both players turn over three cards and find the sum of their fractions.
- Each player records their sum.
- After 5 rounds, add each player's sums for each of the rounds.
- The player with the greater sum wins.

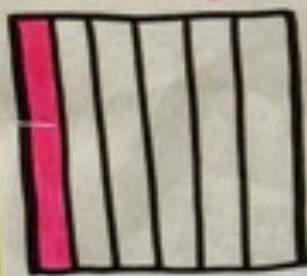
Observe Your Child

Turn over two cards and find an estimate of the sum of the fractions. Ask your student to explain how he or she used number sense to estimate.

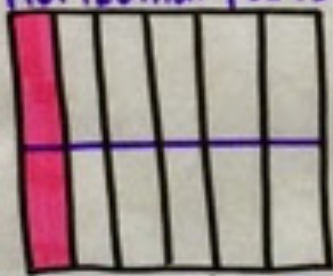
Finding Equivalent Fractions

Example: $\frac{1}{6}$

Draw $\frac{1}{6}$



Break into 2 horizontal parts



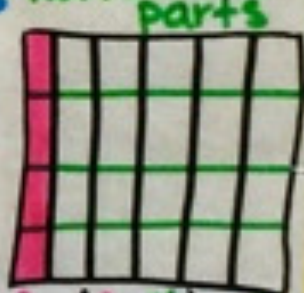
$$\frac{1}{6} = \frac{(1 \times 2)}{(6 \times 2)} = \frac{2}{12}$$

Break into 3 horizontal parts



$$\frac{1}{6} = \frac{(1 \times 3)}{(6 \times 3)} = \frac{3}{18}$$

Break into 4 horizontal parts



$$\frac{1}{6} = \frac{(1 \times 4)}{(6 \times 4)} = \frac{4}{24}$$

$$\frac{1}{6}$$

$$\frac{2}{12}$$

$$\frac{3}{18}$$

and $\frac{4}{24}$

are equivalent fractions!

Additional Practice 7-2

Find Common Denominators

Another Look!

Rename $\frac{4}{10}$ and $\frac{3}{8}$ using a common denominator.

Remember: A multiple is a product of the number and any nonzero whole number.



Step 1

Find a common denominator for $\frac{4}{10}$ and $\frac{3}{8}$.
List multiples of the denominators 10 and 8.
Then look for a common multiple.

- 10:** 10, 20, 30, 40
8: 8, 16, 24, 32, 40

The number 40 can be used as the common denominator.

Step 2

Rename $\frac{4}{10}$ and $\frac{3}{8}$ using 40 as the common denominator.

Multiply the numerator and denominator by the same nonzero number.

$$\frac{4}{10} \quad \frac{4 \times 4}{10 \times 4} = \frac{16}{40} \quad \frac{3}{8} \quad \frac{3 \times 5}{8 \times 5} = \frac{15}{40}$$

So, $\frac{16}{40}$ and $\frac{15}{40}$ is one way to rename $\frac{4}{10}$ and $\frac{3}{8}$ using a common denominator.

In 1–9, find a common denominator for each pair of fractions. Then write equivalent fractions with the common denominator.

1. $\frac{1}{3}$ and $\frac{4}{9}$

$\frac{1}{3}$ Multiples of the denominator: _____ Rename $\frac{1}{3}$: _____

$\frac{4}{9}$ Multiples of the denominator: _____ Rename $\frac{4}{9}$: _____

Common Denominator: _____

Rename. $\frac{1 \times \square}{3 \times \square} = \frac{\square}{\square} \quad \frac{4 \times \square}{9 \times \square} = \frac{\square}{\square}$

2. $\frac{3}{4}$ and $\frac{2}{5}$

3. $\frac{4}{7}$ and $\frac{2}{3}$

4. $\frac{1}{2}$ and $\frac{7}{11}$

5. $\frac{5}{12}$ and $\frac{3}{5}$

6. $\frac{5}{4}$ and $\frac{11}{16}$

7. $\frac{6}{7}$ and $\frac{1}{5}$

8. $\frac{9}{15}$ and $\frac{4}{9}$

9. $\frac{5}{6}$ and $\frac{8}{21}$





Additional Practice 7-3

Add Fractions with Unlike Denominators

Another Look!

Find $\frac{1}{6} + \frac{5}{8}$.

Remember: A multiple is a product of the number and any nonzero whole number.



Step 1

List multiples of the denominators.

Look for a multiple that is the same in both lists.

Choose the least one.

6: 6, 12, 18, 24, 30, 36, 42, 48

8: 8, 16, 24, 32, 40, 48

24 and 48 are common multiples of 6 and 8. 24 is the lesser of the two.

Step 2

Write equivalent fractions using the common multiple as the denominator.

$$\frac{1}{6} = \frac{1 \times 4}{6 \times 4} = \frac{4}{24}$$

$$\frac{5}{8} = \frac{5 \times 3}{8 \times 3} = \frac{15}{24}$$

Step 3

Add the fractions to find the total number of twenty-fourths.

$$\frac{4}{24} + \frac{15}{24} =$$

$$\frac{4 + 15}{24} = \frac{19}{24}$$

$$\text{So, } \frac{1}{6} + \frac{5}{8} = \frac{19}{24}$$

In 1–4, find each sum.

1. $\frac{1}{2} + \frac{1}{6}$

Least multiple that is the same: _____

Add using renamed fractions:

$$\underline{\quad} + \underline{\quad} = \underline{\quad} \text{ or } \frac{\square}{\square}$$

2. $\frac{1}{9} + \frac{5}{6}$

Least multiple that is the same: _____

Add using renamed fractions:

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

3. $\frac{4}{5} + \frac{1}{15}$

Least multiple that is the same: _____

Add using renamed fractions:

$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$

4. $\frac{2}{8} + \frac{1}{2}$

Least multiple that is the same: _____

Add using renamed fractions:

$$\underline{\quad} + \underline{\quad} = \underline{\quad} \text{ or } \frac{\square}{\square}$$



Additional Practice 7-4

Subtract Fractions with Unlike Denominators

Another Look!

Beth wants to exercise for $\frac{4}{5}$ hour.
 So far, she has exercised for $\frac{2}{3}$ hour.
 What fraction of an hour does she have left to exercise?



Step 1

Find a common multiple.

Multiples of 5:

5, 10, 15, 20

Multiples of 3:

3, 6, 9, 12, 15

Since 15 is a multiple of both 5 and 3, use 15 as a common denominator.

Step 2

Write equivalent fractions.

$$\frac{4}{5} \times \frac{3}{3} = \frac{12}{15}$$

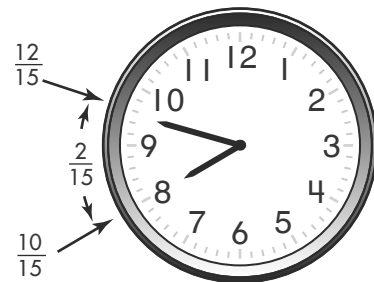
$$\frac{4}{5} = \frac{12}{15}$$

$$\frac{2}{3} \times \frac{5}{5} = \frac{10}{15}$$

$$\frac{2}{3} = \frac{10}{15}$$

Step 3

Subtract the numerators.



$$\frac{12}{15} - \frac{10}{15} = \frac{2}{15}$$

Beth has $\frac{2}{15}$ hour left.

In 1–8, find each difference.

1. $\frac{1}{3} = \frac{\square}{6}$
 $-\frac{1}{6} = \frac{\square}{6}$

 $\frac{\square}{\square}$

2. $\frac{2}{3} = \frac{\square}{12}$
 $-\frac{5}{12} = \frac{\square}{12}$

3. $\frac{3}{5} = \frac{\square}{15}$
 $-\frac{1}{3} = \frac{\square}{15}$

4. $\frac{2}{9} = \frac{\square}{72}$
 $-\frac{1}{8} = \frac{\square}{72}$

5. $\frac{3}{4}$
 $-\frac{2}{5}$

6. $\frac{4}{3}$
 $-\frac{2}{5}$

7. $\frac{8}{8}$
 $-\frac{4}{9}$

8. $\frac{17}{18}$
 $-\frac{2}{3}$

Additional Practice 7-7

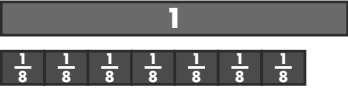
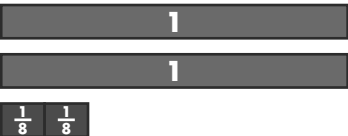
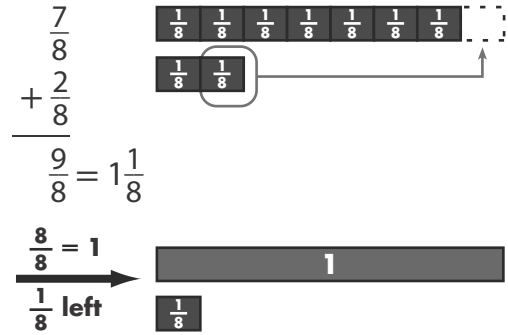
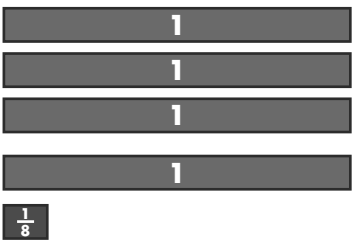
Use Models to Add Mixed Numbers

Another Look!

Draw a model to add $1\frac{7}{8} + 2\frac{1}{4}$.

Remember that you can use what you know about adding fractions to help you add mixed numbers.



<h4>Step 1</h4> <p>Model each addend using fraction strips.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>$1\frac{7}{8}$</p> </div> <div style="text-align: center;">  <p>$2\frac{1}{4} = 2\frac{2}{8}$</p> </div> </div>	<h4>Step 2</h4> <p>Add the fractions. Regroup if possible.</p> <div style="display: flex; align-items: center; justify-content: center;"> $\begin{array}{r} \frac{7}{8} \\ + \frac{2}{8} \\ \hline \frac{9}{8} = 1\frac{1}{8} \end{array}$  </div>	<h4>Step 3</h4> <p>Add the whole numbers to the regrouped fractions. Write the sum.</p> <p>So, $1\frac{7}{8} + 2\frac{1}{4} = 3\frac{9}{8} = 4\frac{1}{8}$.</p> <div style="text-align: center;">  </div>
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In 1–12, use fraction strips to find each sum.

- | | | |
|-----------------------------------|-----------------------------------|------------------------------------|
| 1. $3\frac{1}{2} + 1\frac{4}{8}$ | 2. $2\frac{5}{12} + 4\frac{1}{4}$ | 3. $3\frac{3}{4} + 3\frac{1}{2}$ |
| 4. $2\frac{5}{8} + 4\frac{3}{4}$ | 5. $5\frac{1}{3} + 3\frac{5}{6}$ | 6. $2\frac{1}{2} + 6\frac{3}{4}$ |
| 7. $3\frac{1}{4} + 4\frac{7}{8}$ | 8. $4\frac{5}{6} + 5\frac{7}{12}$ | 9. $2\frac{1}{4} + 4\frac{5}{8}$ |
| 10. $6\frac{1}{2} + 7\frac{3}{4}$ | 11. $4\frac{5}{8} + 6\frac{1}{2}$ | 12. $2\frac{1}{3} + 4\frac{5}{12}$ |

Operating with mixed numbers

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Additional Practice 7-7

Use Models to Add Mixed Numbers

Another Look!

Draw a model to add $1\frac{7}{8} + 2\frac{1}{4}$.

Remember that you can use what you know about adding fractions to help you add mixed numbers.



<p>Step 1</p> <p>Model each addend using fraction strips.</p> <p>$1\frac{7}{8}$</p> <p>$2\frac{1}{4} = 2\frac{2}{8}$</p>	<p>Step 2</p> <p>Add the fractions. Regroup if possible.</p> <p>$\frac{7}{8} + \frac{2}{8} = \frac{9}{8} = 1\frac{1}{8}$</p> <p>$\frac{8}{8} = 1$</p> <p>$\frac{1}{8}$ left</p>	<p>Step 3</p> <p>Add the whole numbers to the regrouped fractions. Write the sum.</p> <p>So, $1\frac{7}{8} + 2\frac{1}{4} = 3\frac{9}{8} = 4\frac{1}{8}$.</p>
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In 1–12, use fraction strips to find each sum.

- | | | |
|-----------------------------------|-----------------------------------|------------------------------------|
| 1. $3\frac{1}{2} + 1\frac{4}{8}$ | 2. $2\frac{5}{12} + 4\frac{1}{4}$ | 3. $3\frac{3}{4} + 3\frac{1}{2}$ |
| 4. $2\frac{5}{8} + 4\frac{3}{4}$ | 5. $5\frac{1}{3} + 3\frac{5}{6}$ | 6. $2\frac{1}{2} + 6\frac{3}{4}$ |
| 7. $3\frac{1}{4} + 4\frac{7}{8}$ | 8. $4\frac{5}{6} + 5\frac{7}{12}$ | 9. $2\frac{1}{4} + 4\frac{5}{8}$ |
| 10. $6\frac{1}{2} + 7\frac{3}{4}$ | 11. $4\frac{5}{8} + 6\frac{1}{2}$ | 12. $2\frac{1}{3} + 4\frac{5}{12}$ |

Additional Practice 7-7

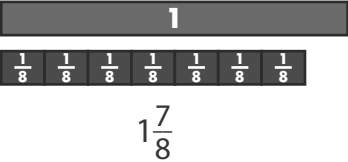

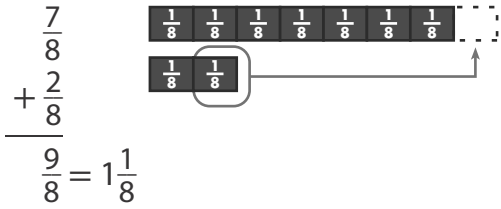

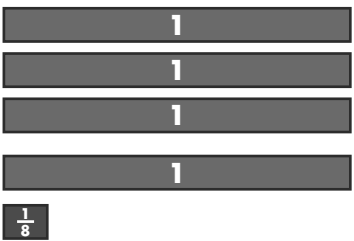
Use Models to Add Mixed Numbers

Another Look!

Draw a model to add $1\frac{7}{8} + 2\frac{1}{4}$.

Remember that you can use what you know about adding fractions to help you add mixed numbers.



<h3>Step 1</h3> <p>Model each addend using fraction strips.</p>  $1\frac{7}{8}$  $2\frac{1}{4} = 2\frac{2}{8}$	<h3>Step 2</h3> <p>Add the fractions. Regroup if possible.</p>  $\frac{7}{8} + \frac{2}{8} = \frac{9}{8} = 1\frac{1}{8}$ <p>$\frac{8}{8} = 1$</p> <p>$\frac{1}{8}$ left</p> 	<h3>Step 3</h3> <p>Add the whole numbers to the regrouped fractions. Write the sum.</p> <p>So, $1\frac{7}{8} + 2\frac{1}{4} = 3\frac{9}{8} = 4\frac{1}{8}$.</p> 
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In 1–12, use fraction strips to find each sum.

- | | | |
|-----------------------------------|-----------------------------------|------------------------------------|
| 1. $3\frac{1}{2} + 1\frac{4}{8}$ | 2. $2\frac{5}{12} + 4\frac{1}{4}$ | 3. $3\frac{3}{4} + 3\frac{1}{2}$ |
| 4. $2\frac{5}{8} + 4\frac{3}{4}$ | 5. $5\frac{1}{3} + 3\frac{5}{6}$ | 6. $2\frac{1}{2} + 6\frac{3}{4}$ |
| 7. $3\frac{1}{4} + 4\frac{7}{8}$ | 8. $4\frac{5}{6} + 5\frac{7}{12}$ | 9. $2\frac{1}{4} + 4\frac{5}{8}$ |
| 10. $6\frac{1}{2} + 7\frac{3}{4}$ | 11. $4\frac{5}{8} + 6\frac{1}{2}$ | 12. $2\frac{1}{3} + 4\frac{5}{12}$ |



Practice



Video



Tools



Games

Additional Practice 7-9

Use Models to Subtract Mixed Numbers

Another Look!

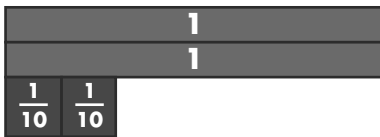
Draw a model to find $2\frac{1}{5} - 1\frac{3}{10}$.

Remember to check that your answer makes sense.



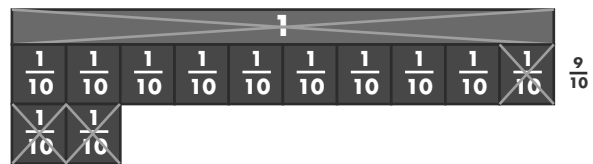
Step 1

Rename the fractions with a common denominator. Use the common denominator to model the number you are subtracting from, $2\frac{1}{5}$ or $2\frac{2}{10}$.



Step 2

Rename $2\frac{2}{10}$ as $1\frac{12}{10}$. Cross out one whole and $\frac{3}{10}$ to show subtracting $1\frac{3}{10}$.



Write the parts of the model that are left as a fraction or mixed number.

$$\text{So, } 2\frac{1}{5} - 1\frac{3}{10} = \frac{9}{10}.$$

In 1–12, find each difference.

1. $6\frac{1}{4} - 3\frac{5}{8}$

2. $4 - 1\frac{1}{2}$

3. $5\frac{1}{3} - 3\frac{1}{6}$

4. $7\frac{2}{5} - 4\frac{7}{10}$

5. $12\frac{3}{4} - 11\frac{7}{8}$

6. $9\frac{3}{10} - 2\frac{2}{5}$

7. $8\frac{1}{4} - 2\frac{5}{12}$

8. $12\frac{1}{3} - 5\frac{4}{6}$

9. $9\frac{1}{2} - 6\frac{9}{10}$

10. $3\frac{4}{5} - 1\frac{4}{10}$

11. $7\frac{1}{4} - 3\frac{5}{8}$

12. $10\frac{1}{3} - 7\frac{5}{9}$

Use fraction strips to help.





Practice



Video



Tools



Games

Additional Practice 8-7

Multiply Mixed Numbers

Another Look!

Millwood City is constructing a new highway through town. The construction crew can complete $5\frac{3}{5}$ miles of road each month. How many miles will they complete in $6\frac{1}{2}$ months?

Step 1

Round the mixed numbers to whole numbers to estimate the product.

$$\begin{array}{r} 5\frac{3}{5} \times 6\frac{1}{2} \\ \downarrow \quad \downarrow \\ 6 \times 7 = 42 \end{array}$$

So, they can complete about 42 miles.

Step 2

Rename the mixed numbers.

$$5\frac{3}{5} \times 6\frac{1}{2} = \frac{28}{5} \times \frac{13}{2}$$

Step 3

Multiply the numerators and the denominators.

$$\frac{28}{5} \times \frac{13}{2} = \frac{364}{10} = 36\frac{2}{5}$$

The construction crew will complete $36\frac{2}{5}$ miles of highway in $6\frac{1}{2}$ months.

Step 4

Check for reasonableness.

Compare your product to your estimate.

$36\frac{2}{5}$ is close to 42, so the answer is reasonable.

In 1–4, estimate the product. Then complete the multiplication.

$$1. 1\frac{1}{4} \times 2\frac{1}{4} = \frac{\square}{4} \times \frac{9}{\square} = \frac{5 \times \square}{\square \times 4} = \frac{45}{\square} = \square \frac{\square}{16}$$

$$2. 3\frac{1}{2} \times 2\frac{2}{3} = \frac{7}{\square} \times \frac{\square}{3} = \frac{\square \times 8}{2 \times \square} = \frac{\square}{6} = \square \frac{1}{\square}$$

$$3. 5\frac{1}{3} \times 2\frac{3}{4} = \frac{\square}{3} \times \frac{11}{\square} = \square$$

$$4. 4\frac{1}{5} \times 2\frac{1}{4} = \frac{\square}{5} \times \frac{\square}{4} = \square$$

In 5–12, estimate the product. Then find each product.

$$5. 4 \times 6\frac{1}{4}$$

$$6. 3\frac{2}{3} \times 2\frac{3}{4}$$

$$7. \frac{7}{8} \times 4\frac{1}{6}$$

$$8. 1\frac{1}{2} \times 2\frac{3}{4}$$

$$9. 8\frac{1}{10} \times \frac{2}{3}$$

$$10. 4\frac{1}{12} \times 7$$

$$11. 3\frac{4}{5} \times 7\frac{1}{2}$$

$$12. 6\frac{2}{3} \times 4\frac{4}{5}$$



Area, Perimeter & Volume

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Name _____

Understand Volume Concepts

Dear Family,

In this topic, your child is learning about volume. He or she will learn how to find the volume of a rectangular prism, then use that understanding to formulate a plan to find the volume of a solid figure that is the combination of two or more rectangular prisms. Your child will also use models to develop the formula for volume and to recognize a cube with a side length of one unit as a unit cube having one cubic unit of volume. This will give him or her the skills necessary to solve problems involving volume, the area of the base of a prism multiplied by the height of the prism.

Here is an activity you can do with your child.

Think Inside the Box

Materials: everyday examples of rectangular prisms, such as a tissue box, cereal box, jewelry box, or shoe box

Step 1 Have your child use estimation to compare the examples of the rectangular prisms, for example, by size, shape, length, width, and height.

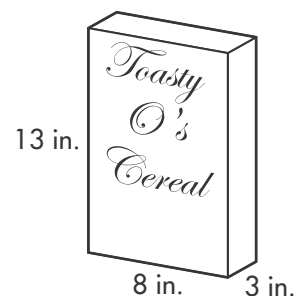
Step 2 Discuss volume as the number of unit cubes needed to fill a figure.

Step 3 Have your child use estimation to compare the volumes of the rectangular prisms. Ask questions such as: *Which box seems to have a greater volume than the tissue box? How might you order the boxes from least to greatest volume?*

Optional Work together to measure the dimensions of one of the rectangular prisms. Find its volume by using the formula for the volume of a rectangular prism.

Volume = (length \times width) \times height

For example, the volume of the cereal box pictured is 312 cubic inches because $V = (8 \times 3) \times 13 = 312$ cubic inches.



Observe Your Child

Before measuring, ask your child to decide what measurement tools would be best for measuring the containers or objects chosen and to explain his or her decision.

Additional Practice 11-1 Model Volume

Another Look!

Volume is the measure of space inside a solid figure.

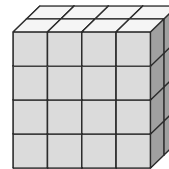
Volume is measured in cubic units.



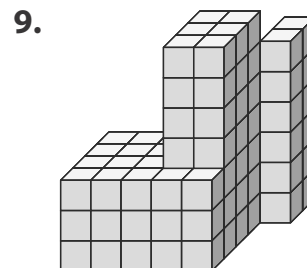
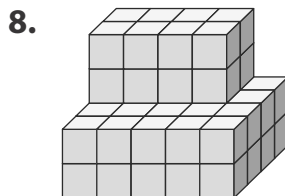
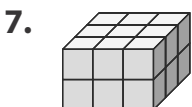
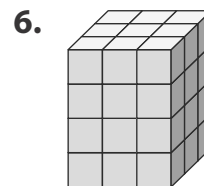
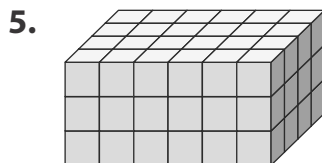
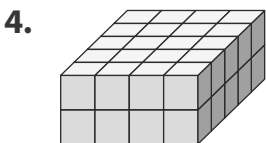
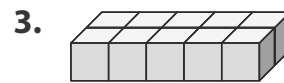
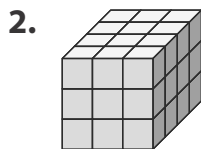
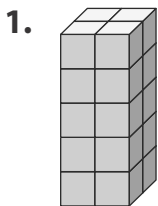
Find the volume of this solid by counting the number of unit cubes.

There are 8 cubes in the bottom layer and there are 4 layers. The total number of unit cubes is 32.

So, the volume is 32 cubic units.

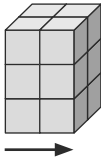
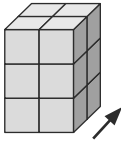
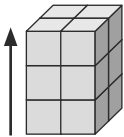


In 1–9, find the volume of each solid. Use unit cubes to help.



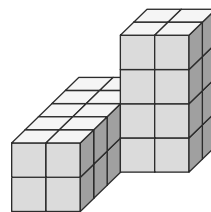
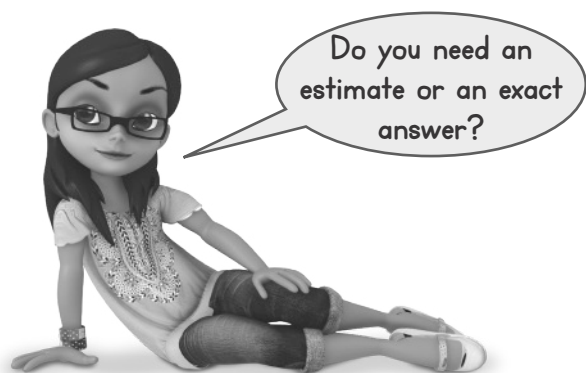
In 10–12, use the table.

- 10. Higher Order Thinking** Complete the table. Show some different ways that a rectangular prism can have a volume of 12 cubic units.
- 11. Look for Relationships** Look across each row of the table. What pattern do you see?
- 12.** Use the table to help. How many unit cubes are needed to make a model of a rectangular prism that is 4 units long, 3 units wide, and 2 units tall?

Number of Cubes Long	Number of Cubes Wide	Number of Cubes Tall
		
1	1	12
2	2	3
2	3	
2		1
3	1	
3	2	
3		1
4	1	
6		1

- 13. Number Sense** A building is 509 feet tall. Each floor is about 14 feet tall. About how many floors does the building have?


- 14.** Velma and Bruce combined their model buildings to make one building. How can they change each building part to make the parts equal in volume? Explain your reasoning.

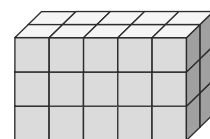


Assessment Practice

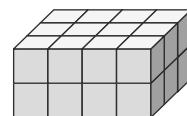
- 15.** Both of the models shown are made up of 1-inch cubes. Which statement about these models is true?

- (A) Model Q and Model R have the same volume.
- (B) Model R has a greater volume than Model Q.
- (C) The volume of Model Q is 7 cubic inches greater than the volume of Model R.
- (D) The volume of Model Q and Model R combined is 54 cubic inches.

1 unit  1 unit
1 unit



Model Q



Model R

Study Guide Worksheet 5-6

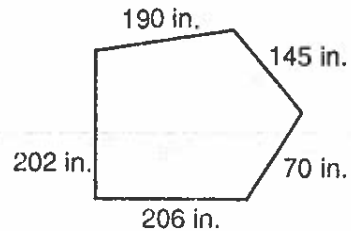
Geometry Connection: Perimeter

The distance around a geometric figure is its perimeter.

To find the perimeter of a figure, add the measures of its sides.

Example $P = 145 + 70 + 206 + 202 + 190$
 $= 813$

The perimeter is 813 inches.

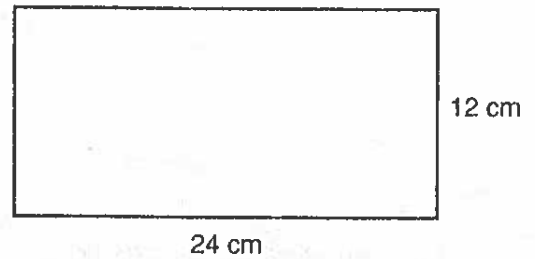


The perimeter of a rectangle equals 2 times the length plus 2 times the width.

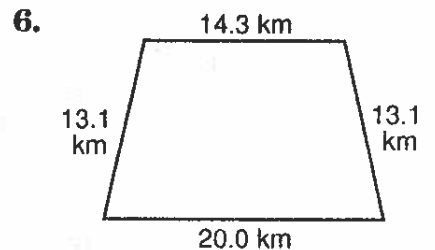
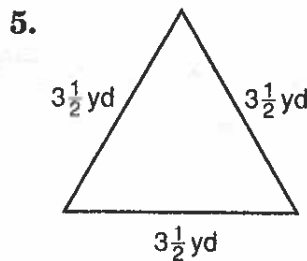
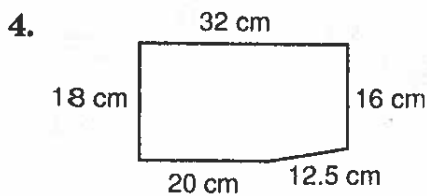
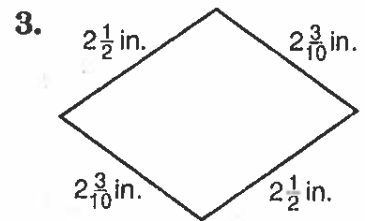
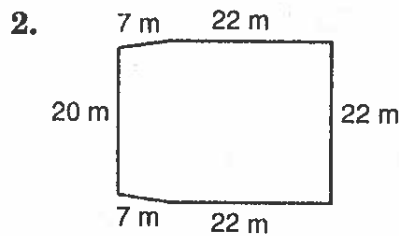
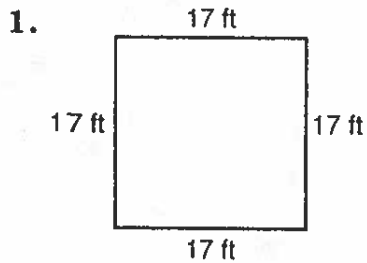
$$P = 2l + 2w$$

Example $P = (2 \cdot 24) + (2 \cdot 12)$
 $= 48 + 24$
 $= 72$

The perimeter is 72 centimeters.



Find the perimeter of each figure shown or described below.



7. rectangle:
 $l = 8$ feet
 $w = 5$ feet

8. rectangle:
 $l = 3.5$ meters
 $w = 2$ meters

9. rectangle:
 $l = 17$ yards
 $w = 8.5$ yards

Name _____

Date _____

Study Guide Worksheet 5-6

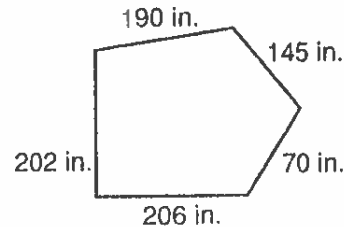
Geometry Connection: Perimeter

The distance around a geometric figure is its perimeter.

To find the perimeter of a figure, add the measures of its sides.

Example $P = 145 + 70 + 206 + 202 + 190$
 $= 813$

The perimeter is 813 inches.

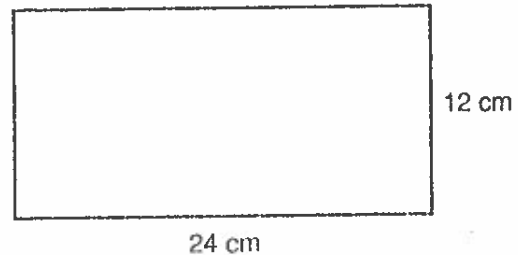


The perimeter of a rectangle equals 2 times the length plus 2 times the width.

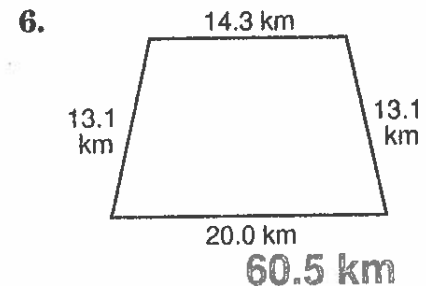
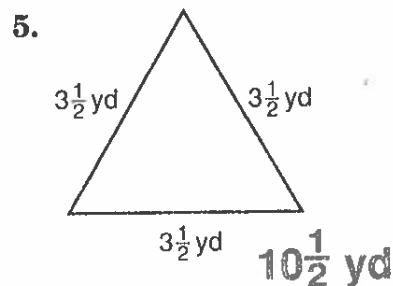
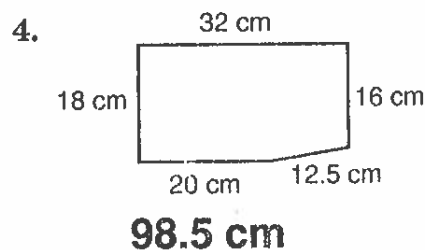
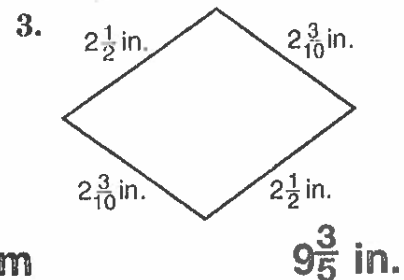
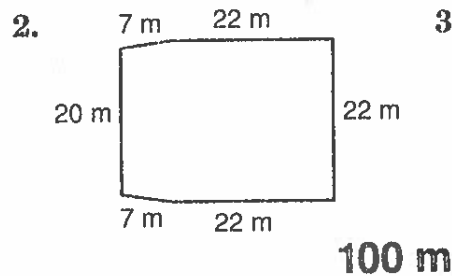
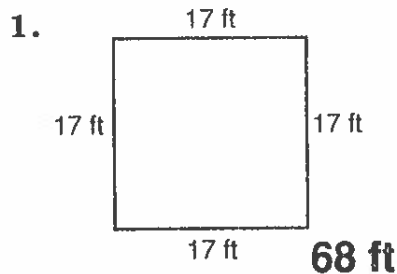
$$P = 2l + 2w$$

Example $P = (2 \cdot 24) + (2 \cdot 12)$
 $= 48 + 24$
 $= 72$

The perimeter is 72 centimeters.



Find the perimeter of each figure shown or described below.



7. rectangle:
 $l = 8$ feet
 $w = 5$ feet
26 feet

8. rectangle:
 $l = 3.5$ meters
 $w = 2$ meters
11 meters

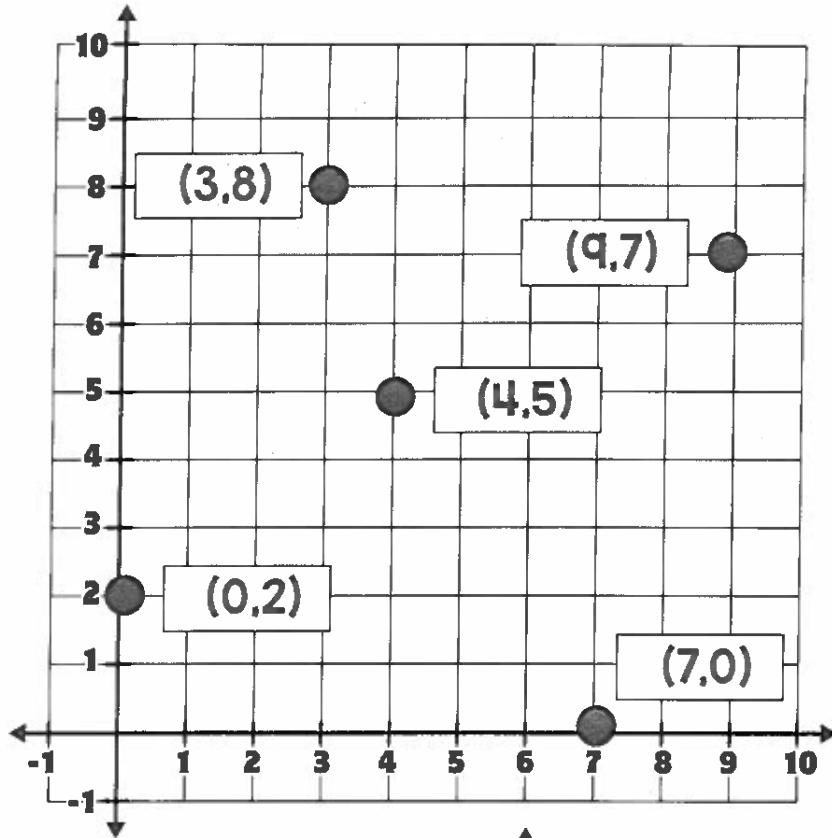
9. rectangle:
 $l = 17$ yards
 $w = 8.5$ yards
51 yards

Graphing on a coordinate plane & measurement

Scan this QR Code to access additional online resources



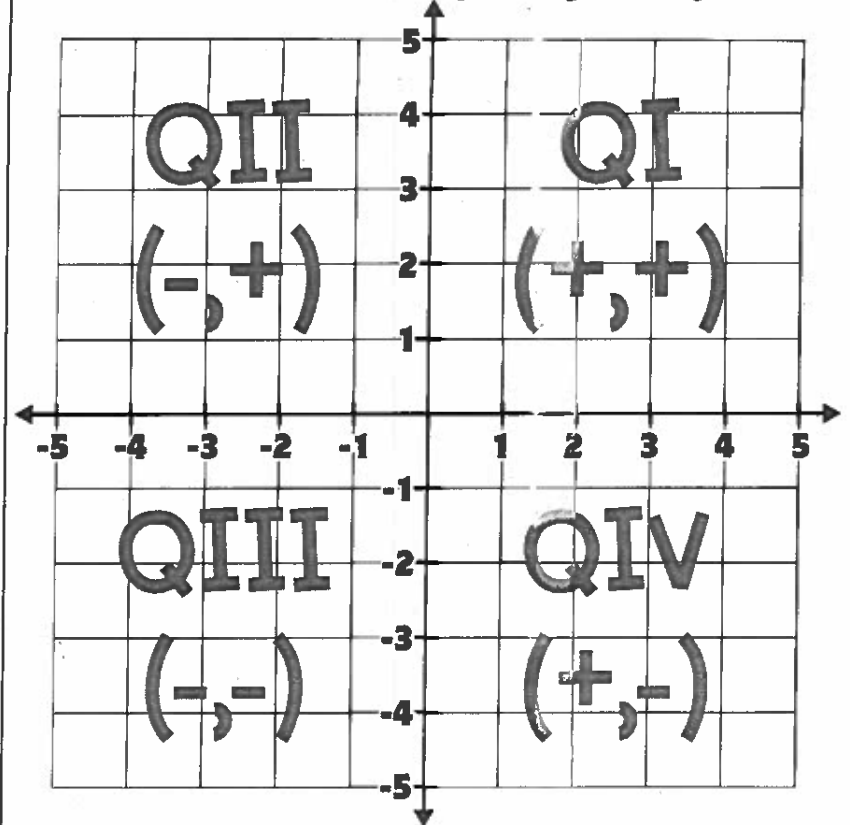
Coordinate Plane



(x, y)

Origin: $(0, 0)$

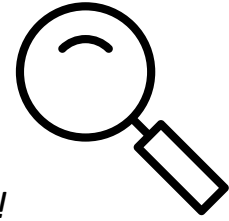
Coordinate Plane



(x, y)

Origin: $(0, 0)$

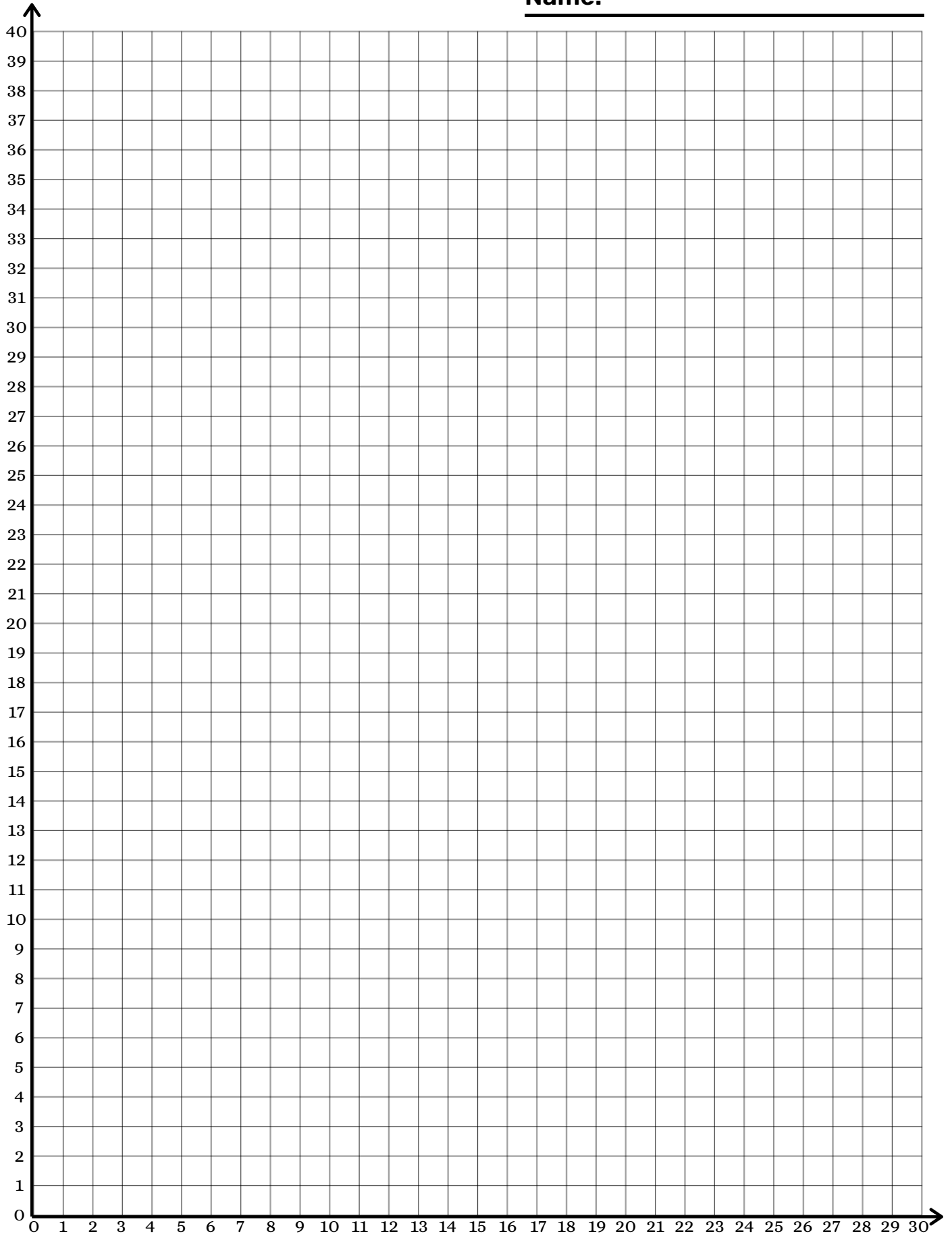
COORDINATE GRAPH MYSTERY PICTURE (FIRST QUADRANT)



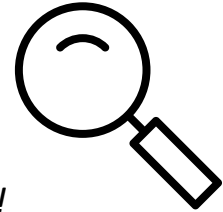
Plot the ordered pairs, connecting with straight lines as you go. Be sure to stop when you reach **"STOP"** and begin a new series of connected lines at each **"START"**. *Have fun!*

<p>START (23, 25) (25, 23) (25, 9) (21, 5) (15, 5) (14, 6) (13, 5) (7, 5) (3, 9) (3, 23) (6, 26) (12, 26) (13, 25) (13, 24) (12, 24) (14, 24) (16, 26) (20, 26) STOP</p> <p>START (15, 25) (15, 28) (16, 29) (16, 30) (14, 30) (13, 29) (13, 25) STOP</p>	<p>START (10, 32) (13, 29) (13, 31) (11, 33) (9, 33) (9, 31) (11, 29) (13, 29) STOP</p> <p>START (20, 23) (19, 23) (18, 22) (18, 19) (19, 18) (21, 18) (23, 20) (23, 28) (24, 28) (25, 29) (25, 31) (24, 32) (24, 33) (23, 34) (20, 34) (19, 33) (19, 32) (18, 31) (18, 29) (19, 28) (20, 28) (20, 23) (19, 22) (18, 22) STOP</p>	<p>START (19, 31) (20, 32) (21, 31) (19, 31) (19, 33) (21, 33) (21, 31) STOP</p> <p>START (22, 31) (23, 32) (24, 31) (22, 31) (22, 33) (24, 33) (24, 31) STOP</p> <p>START (19, 30) (20, 29) (23, 29) (24, 30) STOP</p>	<p>START (20, 19) (21, 18) STOP</p> <p>START (21, 20) (22, 19) STOP</p> <p>START (22, 21) (23, 20) STOP</p> <p>START (21, 32) (22, 32) STOP</p>
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Name: _____



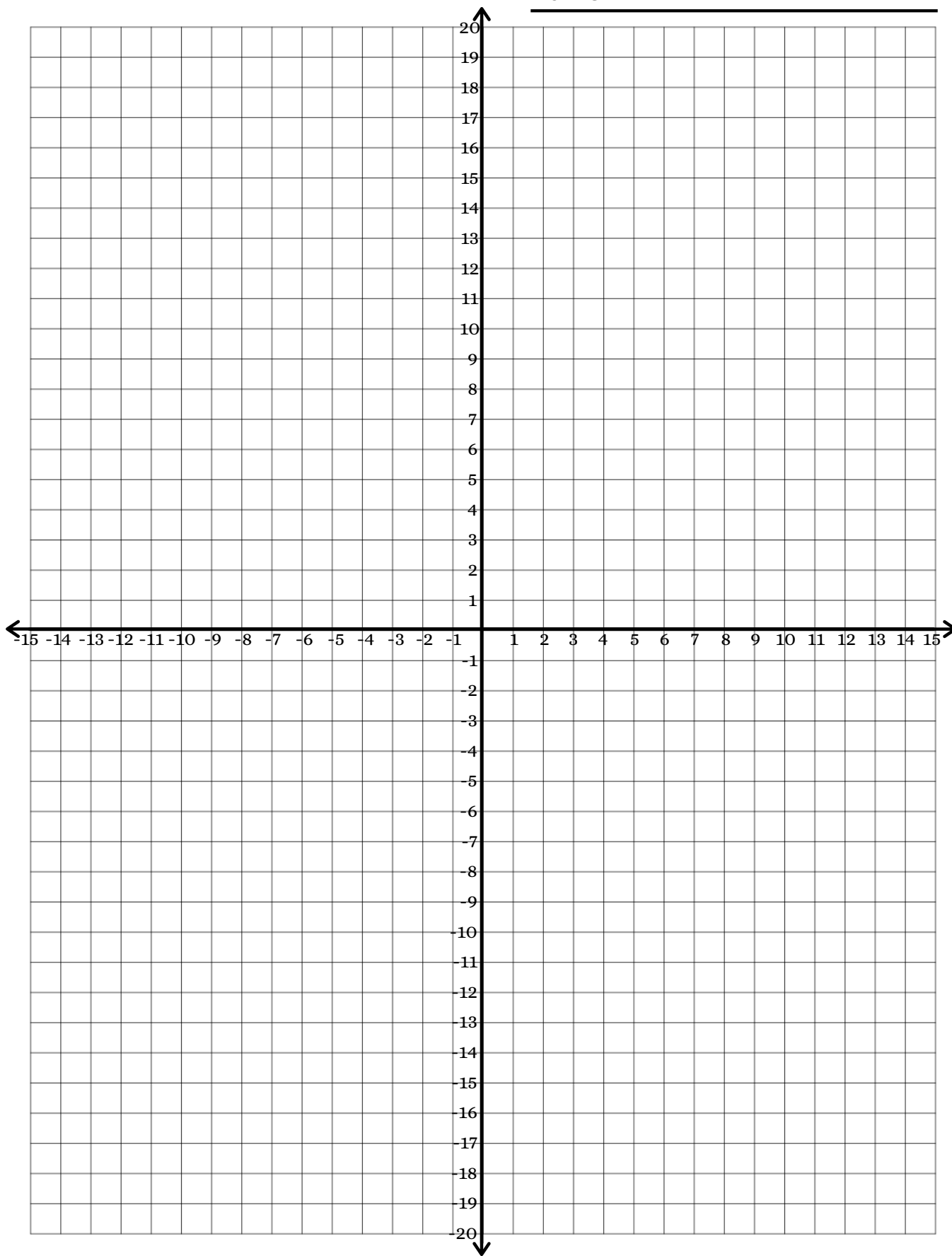
COORDINATE GRAPH MYSTERY PICTURE (FOUR QUADRANT)



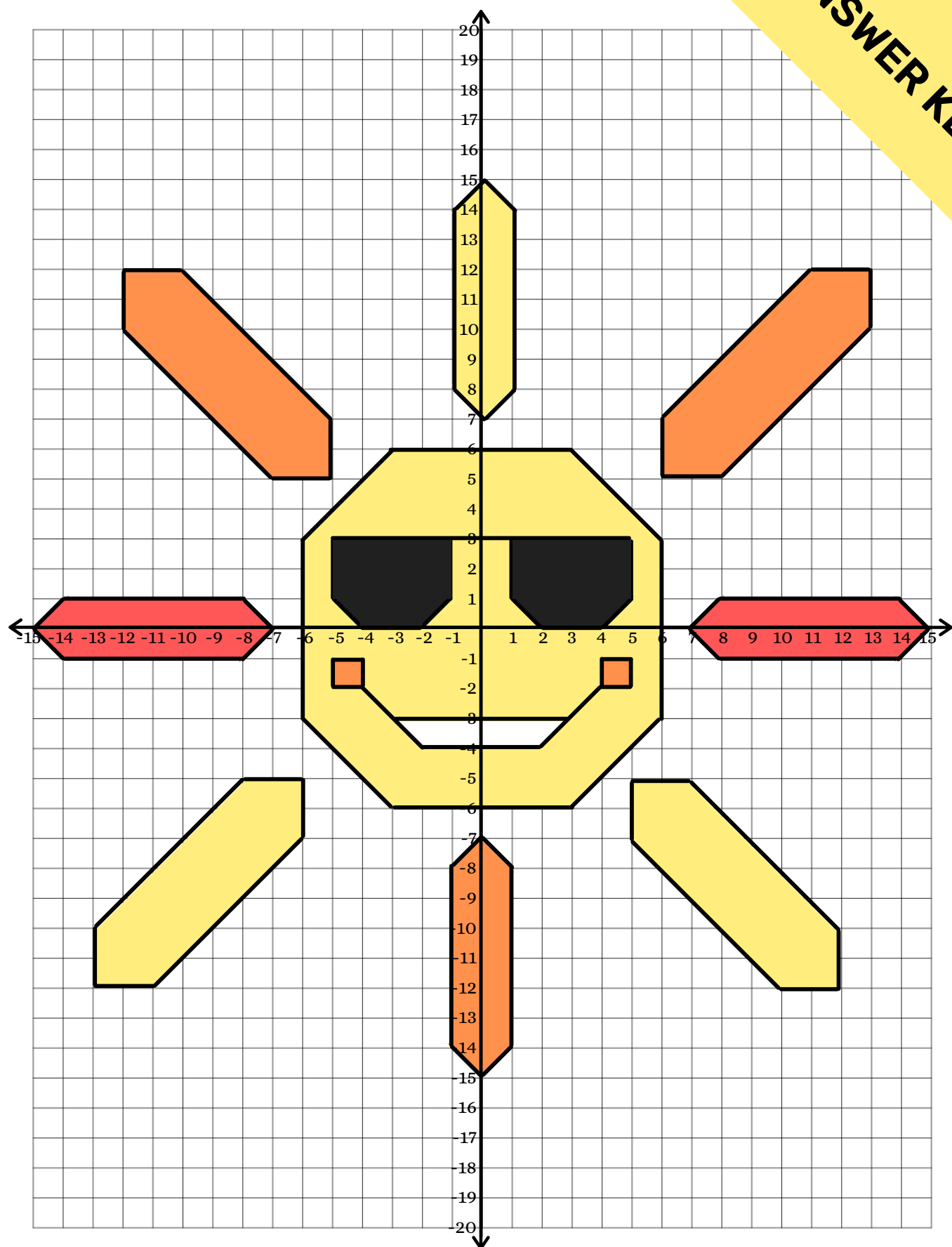
Plot the ordered pairs, connecting with straight lines as you go. Be sure to stop when you reach **"STOP"** and begin a new series of connected lines at each **"START"**. *Have fun!*

<p>START (3, 6) (6, 3) (6, -3) (3, -6) (-3, -6) (-6, -3) (-6, 3) (-3, 6) (3, 6) STOP</p> <p>START (6, 5) (6, 7) (11, 12) (13, 12) (13, 10) (8, 5) (6, 5) STOP</p> <p>START (7, 0) (8, 1) (14, 1) (15, 0) (14, -1) (8, -1) (7, 0) STOP</p>	<p>START (5, -5) (7, -5) (12, -10) (12, -12) (10, -12) (5, -7) (5, -5) STOP</p> <p>START (0, -7) (1, -8) (1, -14) (0, -15) (-1, -14) (-1, -8) (0, -7) STOP</p> <p>START (-6, -5) (-6, -7) (-11, -12) (-13, -12) (-13, -10) (-8, -5) (-6, -5) STOP</p>	<p>START (-7, 0) (-8, -1) (-14, -1) (-15, 0) (-14, 1) (-8, 1) (-7, 0) STOP</p> <p>START (-5, 5) (-7, 5) (-12, 10) (-12, 12) (-10, 12) (-5, 7) (-5, 5) STOP</p> <p>START (0, 7) (-1, 8) (-1, 14) (0, 15) (1, 14) (1, 8) (0, 7) STOP</p>	<p>START (-1, 3) (-1, 1) (-2, 0) (-4, 0) (-5, 1) (-5, 3) (5, 3) (5, 1) (4, 0) (2, 0) (1, 1) (1, 3) STOP</p> <p>START (-4, -2) (-4, -1) (-5, -1) (-5, -2) (-4, -2) (-2, -4) (2, -4) (4, -2) (5, -2) (5, -1) (4, -1) (4, -2) (3, -3) (-3, -3) STOP</p>
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Name: _____



ANSWER KEY



Name _____

Convert Measurements

Dear Family,

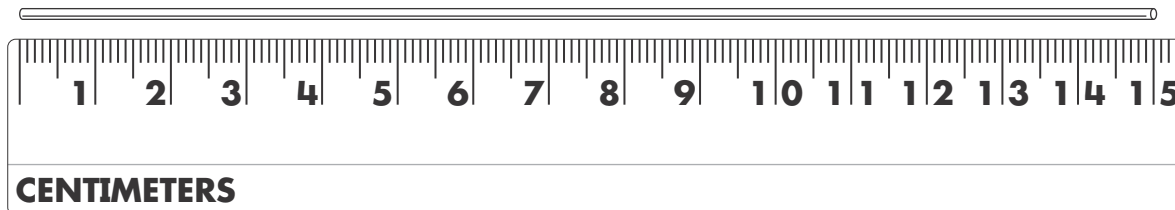
Your student is continuing to develop his or her understanding of customary and metric units of length, capacity, weight, and mass. This topic focuses on converting among different-sized standard measurement units within a given measurement system, as well as converting among units of time. Your student will use this understanding in solving multi-step and real-world problems.

Complete the activity with your student to practice these skills.

Converting Between Metric Units of Length

Materials centimeter ruler

Have your child measure an object, such as a piece of string, to the nearest centimeter. Help him or her convert the length to millimeters (multiply by 10) and meters (divide by 100). Repeat this activity by measuring the length of other objects.



The string is about 15 centimeters long.

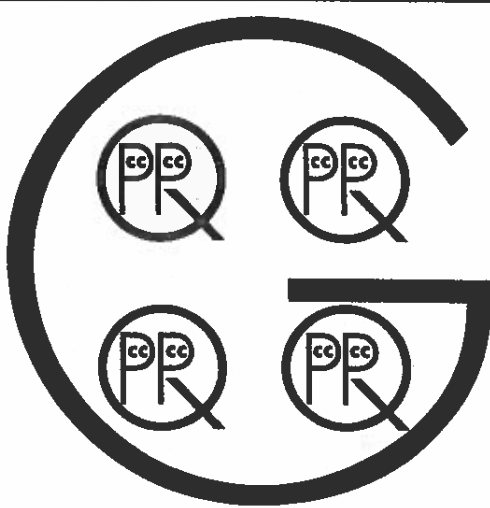
$$15 \text{ cm} \times 10 = 150 \text{ mm} \text{ and } 15 \text{ cm} \div 100 = 0.15 \text{ m}$$

Observe Your Child

Have your child measure your arm span to the nearest inch. Then have your child convert the length from inches to feet by dividing by 12. Discuss why it is important to calculate correctly when converting from one unit to another.

MEASUREMENT

LIQUIDS



$1\text{ c} = 8\text{ oz}$
 $1\text{ pt} = 16\text{ oz}$
 $1\text{ qt} = 32\text{ oz}$

DAYS OF WEEK

Sunday
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday

EQUIVALENCE TABLE FOR UNITS

LENGTH	
U.S. Customary	Metric
12 in. = 1 ft	10 mm = 1 cm
3 ft = 1 yd	1 000 mm = 1 m
5280 ft = 1 mi	100 cm = 1 m
1760 yd = 1 mi	1000 m = 1 km
WEIGHT	
U.S. Customary	Metric
16 oz = 1 lb	1000 g = 1 kg
2000 lb = 1 ton	1000 mg = 1 g
CAPACITY (LIQUID MEASURE)	
U.S. Customary	Metric
16 oz = 1 pt	1000 mL = 1 L
2 pt = 1 qt	
4 qt = 1 gal	

There are **no common fractions** in the metric system. Use **decimals**.

TIME

1 minute = 60 seconds
1 hour = 60 minutes
1 day = 24 hours
1 year = 52 weeks
1 year = 12 months
1 common year = 365 days
1 leap year = 366 days
1 decade = 10 years
1 century = 100 years
1 millennium = 1000 years


MONTHS OF YEAR

MONTH	ORDER	DAYS
January	First	31
February	Second	28 or 29
March	Third	31
April	Fourth	30
May	Fifth	31
June	Sixth	30
July	Seventh	31
August	Eighth	31
September	Ninth	30
October	Tenth	31
November	Eleventh	30
December	Twelfth	31

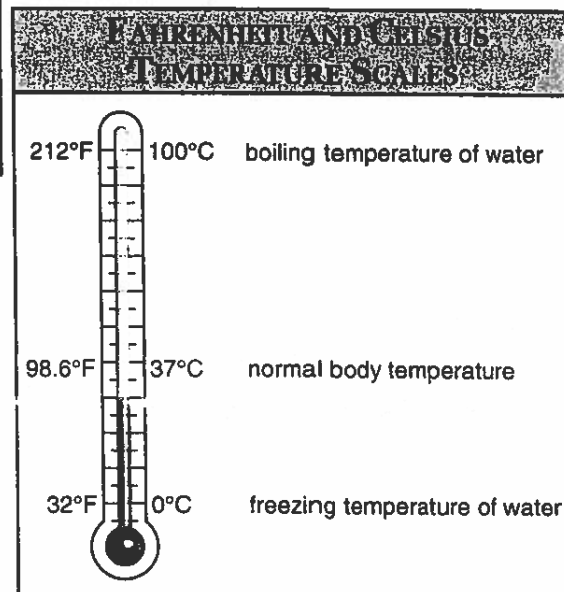
COUNTS

1 dozen	→	12 items
1 score	→	20 items

LENGTH



$1\text{ foot} = 12\text{ inches}$ $1\text{ yard} = 3\text{ feet}$
 $1\text{ mile} = 5280\text{ feet}$ $1\text{ mile} = 1760\text{ yards}$





Practice



Video



Tools



Games

Additional Practice 12-1

Convert Customary Units of Length

Another Look!

Remember:

1 foot equals 12 inches.

1 yard equals 3 feet, or 36 inches.

1 mile equals 1,760 yards,
or 5,280 feet.

How to change from one customary unit of length to another:

Converting from a smaller unit to a larger unit:

$$6 \text{ feet} = \underline{\hspace{2cm}} \text{ yards}$$

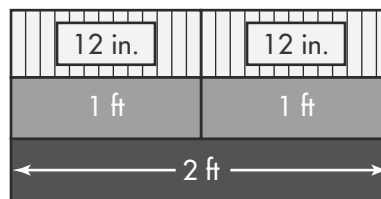


You know $3 \text{ ft} = 1 \text{ yd}$. **Divide** $6 \div 3$.

So, $6 \text{ ft} = 2 \text{ yd}$.

Converting from a larger unit to a smaller unit:

$$2 \text{ feet} = \underline{\hspace{2cm}} \text{ inches}$$



You know $1 \text{ ft} = 12 \text{ in.}$ **Multiply** 2×12 .

So, $2 \text{ ft} = 24 \text{ in.}$

In 1–9, convert each unit of length.

1. $12 \text{ ft} = \underline{\hspace{2cm}} \text{ yd}$

2. $2 \text{ mi} = \underline{\hspace{2cm}} \text{ yd}$

3. $46 \text{ in.} = \underline{\hspace{1cm}} \text{ ft } \underline{\hspace{1cm}} \text{ in.}$

4. $7 \text{ ft} = \underline{\hspace{2cm}} \text{ in.}$

5. $3 \text{ mi} = \underline{\hspace{2cm}} \text{ ft}$

6. $108 \text{ in.} = \underline{\hspace{2cm}} \text{ ft}$

7. $72 \text{ in.} = \underline{\hspace{2cm}} \text{ yd}$

8. $2 \text{ ft } 3 \text{ in.} = \underline{\hspace{2cm}} \text{ in.}$

9. $45 \text{ in.} = \underline{\hspace{1cm}} \text{ yd } \underline{\hspace{1cm}} \text{ in.}$

In 10–15, compare lengths. Write $>$, $<$, or $=$ for each \bigcirc .

10. $64 \text{ in.} \bigcirc 5 \text{ ft}$

11. $2 \text{ mi} \bigcirc 3,333 \text{ yd}$

12. $36 \text{ yd } 2 \text{ ft} \bigcirc 114 \text{ ft } 2 \text{ in.}$

13. $9 \text{ yd} \bigcirc 324 \text{ in.}$

14. $4 \text{ ft } 7 \text{ in.} \bigcirc 56 \text{ in.}$

15. $25 \text{ ft} \bigcirc 8 \text{ yd } 11 \text{ in.}$





Practice



Video



Tools



Games

Additional Practice 12-2

Convert Customary Units of Capacity

Another Look!

Remember:

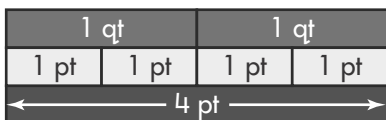
1 gallon equals 4 quarts,
1 quart equals 2 pints,
1 pint equals 2 cups, and
1 cup equals 8 fluid ounces.



How to change from one customary unit of capacity to another:

Converting from a smaller unit to a larger unit:

4 pints = _____ quarts



Operation: Divide.

You know 2 pt = 1 qt.

Find $4 \div 2$; 4 pt = 2 qt.

Converting from a larger unit to a smaller unit:

2 gallons = _____ quarts



Operation: Multiply.

You know 1 gal = 4 qt.

Find 2×4 ; 2 gal = 8 qt.

1. Convert 2 quarts to fluid ounces. Write in the missing amounts.

2 quarts = _____ pints _____ pints = 8 cups _____ cups = _____ fluid ounces

In 2–13, convert each unit of capacity.

2. 14 fl oz = _____ c

3. 8 gal = _____ qt

4. $3\frac{1}{4}$ pt = _____ fl oz

5. $\frac{1}{4}$ c = _____ pt

6. $6\frac{1}{4}$ qt = _____ pt

7. 28 c = _____ qt

8. 2 qt = _____ pt

9. 5 c = _____ pt _____ c

10. 3 gal = _____ pt

11. 96 fl oz = _____ c

12. 4 qt = _____ c

13. $8\frac{1}{4}$ pt = _____ c



Additional Practice 12-3

Convert Customary Units of Weight

Another Look!

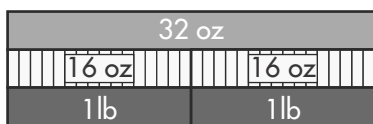
Remember:
1 ton equals 2,000 pounds and
1 pound equals 16 ounces.



How to change from one unit of weight to another:

Converting from a smaller unit to a larger unit:

32 ounces = _____ pounds

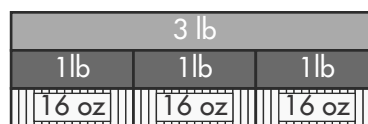


You know 16 oz = 1 lb, so divide.

Find $32 \div 16$; 32 oz = 2 lb.

Converting from a larger unit to a smaller unit:

3 pounds = _____ ounces



You know 1 lb = 16 oz, so multiply.

Find 3×16 ; 3 lb = 48 oz.

In 1–6, convert each unit of weight.

- 4 T = _____ lb
- 5 lb = _____ oz
- 5,500 lb = _____ T
- $2\frac{1}{2}$ lb = _____ oz
- 90 lb = _____ oz
- 224 oz = _____ lb

In 7–12, compare. Write >, <, or = for each .

- 16 lb 16 oz
- 1,500 lb 2 T
- 3 T 5,999 lb
- 1,600 oz 10 lb
- 19 lb 300 oz
- 8 oz $\frac{1}{2}$ lb

In 13 and 14, complete each table to show equivalent measures.

13.

pounds	2,000	3,000	
tons			3

14.

ounces	16	48	
pounds			10



Additional Practice 12-4

Convert Metric Units of Length

Another Look!

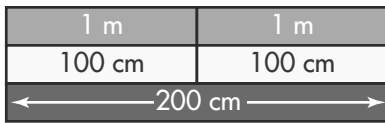
Remember:

- 1 km = 10^3 m = 1,000 m
- 1 m = 10^2 cm = 100 cm
- 1 m = 10^3 mm = 1,000 mm
- 1 cm = 10 mm

How to change from one metric unit of length to another:

Converting a length from a smaller to a larger metric unit:

200 centimeters = _____ meters

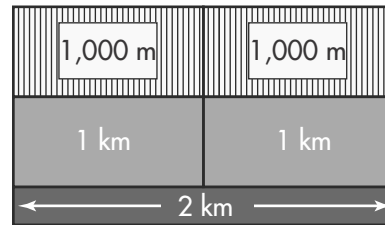


You know 10^2 cm = 1 m, so divide.

Find $200 \div 100$; 200 cm = 2 m.

Converting a length from a larger to a smaller metric unit:

2 kilometers = _____ meters



You know 1 km = 10^3 m, so multiply.

Find $2 \times 1,000$; 2 km = 2,000 m.

In 1–6, convert each unit of length.

1. 25 m = _____ cm
2. 345 cm = _____ m
3. 4.5 m = _____ cm
4. 10 m = _____ mm
5. 987 mm = _____ cm
6. 5 km = _____ m

How can you double check that your answers are correct?



In 7–9, compare lengths. Write >, <, or = for each .

7. 3 km 5,000 m
8. 800 cm 8 m
9. 38.5 mm 10 cm

In 10 and 11, complete each table to show equivalent measures.

10.

mm	5	85	
cm			90

11.

km	0.4		25
m		7,000	



Additional Practice 12-5

Convert Metric Units of Capacity

Another Look!

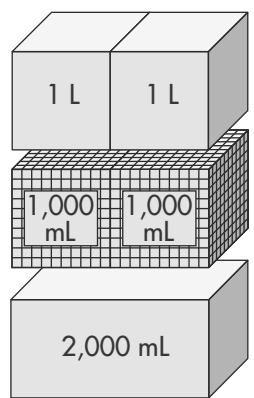
Remember:
To change from liters to milliliters, multiply by 10^3 . To change from milliliters to liters, divide by 10^3 .



How to change from one metric unit of capacity to another:

Converting a capacity from a smaller to a larger metric unit:

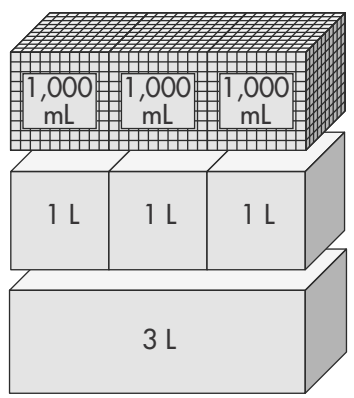
2,000 milliliters = _____ liters



You know $10^3 \text{ mL} = 1\text{L}$, so divide.
Find $2,000 \div 1,000$; $2,000 \text{ mL} = 2\text{L}$.

Converting a capacity from a larger to a smaller metric unit:

3 liters = _____ milliliters



You know $1 \text{ L} = 10^3 \text{ mL}$, so multiply.
Find $3 \times 1,000$; $3 \text{ L} = 3,000 \text{ mL}$.

In 1–9, convert each unit of capacity.

1. $5 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$
2. $13,000 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$
3. $1.6 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$
4. $4,750 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$
5. $950 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$
6. $0.4 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$
7. $2.7 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$
8. $8,400 \text{ mL} = \underline{\hspace{2cm}} \text{ L}$
9. $0.071 \text{ L} = \underline{\hspace{2cm}} \text{ mL}$

In 10 and 11, complete each table to show equivalent measures.

10.

liters	90	9	0.9
milliliters			

11.

milliliters	250	2,500	25,000
liters			



Additional Practice 12-6

Convert Metric Units of Mass

Another Look!

Remember:

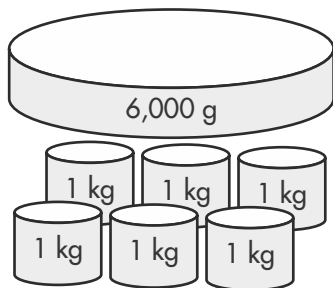
10^3 milligrams equals 1 gram and
 10^3 grams equals 1 kilogram.



How to convert from one metric unit of mass to another:

Smaller metric unit to a larger unit:

6,000 grams = ____ kilograms

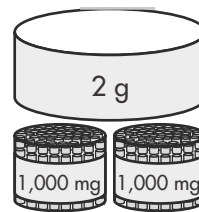


You know 10^3 g = 1 kg, so divide.

Find $6,000 \div 1,000$; $6,000$ g = 6 kg.

Larger metric unit to a smaller unit:

2 grams = ____ milligrams



You know 1 g = 10^3 mg, so multiply.

Find $2 \times 1,000$; 2 g = 2,000 mg.

In 1–6, convert each unit of mass.

1. 72 g = _____ mg

2. 8,000 g = _____ kg

3. 2,000 mg = _____ kg

4. 490 g = _____ kg

5. 0.648 g = _____ mg

6. 0.061 kg = _____ g

In 7–12, compare. Write $>$, $<$, or $=$ for each \bigcirc .

7. 4,000 mg \bigcirc 5 g

8. 64 kg \bigcirc 64,000 g

9. 3 kg \bigcirc 40,000 mg

10. 6,000 g \bigcirc 6 kg

11. 93 g \bigcirc 92,000 mg

12. 90 kg \bigcirc 90,000 mg

In 13 and 14, complete each table to show equivalent measures.

13.

grams	2		200
milligrams		20,000	

14.

grams		1,000	
kilograms	0.1		10





Additional Practice 12-7

Convert Units of Time

Another Look!

Remember:

To change from hours to minutes, or from minutes to seconds, multiply by 60. To change from seconds to minutes, or from minutes to hours, divide by 60.



Change from one unit of time to another.

From a smaller unit to a larger unit:

$$500 \text{ seconds} = \underline{\hspace{2cm}} \text{ minutes}$$

You know 60 seconds = 1 minute.

Divide 500 by 60.

$$\frac{500}{60} = 8\frac{20}{60} = 8\frac{1}{3}$$

So, 500 seconds = $8\frac{1}{3}$ minutes.

From a larger unit to a smaller unit:

$$4.5 \text{ hours} = \underline{\hspace{2cm}} \text{ minutes}$$

You know 1 hour = 60 minutes.

Multiply 4.5 by 60.

$$4.5 \times 60 = 270$$

So, 4.5 hours = 270 minutes.

In 1–6, convert each time.

1. 8 minutes = _____ seconds

2. 90 minutes = _____ hours

3. 5.5 hours = _____ minutes

4. 195 seconds = _____ minutes

5. 156 seconds = _____ minutes, _____ seconds

6. 4 hours, 5 minutes = _____ minutes

In 7–8, compare. Write >, <, or = in each .

7. 600 minutes 10 hours

8. 110 minutes $1\frac{1}{4}$ hours

