Unlock the Problem
Real World

Carlos bought a new skateboard for $99.46 and a helmet and pads for $73.49. How much did Carlos spend in all?

You add money amounts in the same way as you add whole numbers. Use the decimal point to line up the digits.

Use place value.

Add. $99.46 + $73.49

**STEP 1**
Add the pennies. Regroup 15 pennies.

<table>
<thead>
<tr>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 99.46</td>
</tr>
<tr>
<td>+ $ 73.49</td>
</tr>
<tr>
<td>5</td>
</tr>
</tbody>
</table>

**STEP 2**
Add the dimes.

<table>
<thead>
<tr>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 99.46</td>
</tr>
<tr>
<td>+ $ 73.49</td>
</tr>
<tr>
<td>95</td>
</tr>
</tbody>
</table>

**STEPS 3 and 4**
Add the ones. Add the tens.

<table>
<thead>
<tr>
<th>1 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 99.46</td>
</tr>
<tr>
<td>+ $ 73.49</td>
</tr>
<tr>
<td>172 95</td>
</tr>
</tbody>
</table>

**STEP 5**
Insert the decimal point and dollar sign.

<table>
<thead>
<tr>
<th>1 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 99.46</td>
</tr>
<tr>
<td>+ $ 73.49</td>
</tr>
<tr>
<td>$172 95</td>
</tr>
</tbody>
</table>

So, Carlos spent $172.95.

Try This! Find the sum.

A.

| $ 23 . 18 |
| + $ 57 . 45 |

B.

| $ 19 . 07 |
| + $ 65 . 28 |

Math Talk

Explain how you know when to regroup.

Getting Ready for Grade 5  GR1
1. Explain what is happening in Step 2.

<table>
<thead>
<tr>
<th>STEPS 1 and 2</th>
<th>STEPS 3 AND 4</th>
<th>STEP 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>$84.60</td>
<td>$84.60</td>
<td>$84.60</td>
</tr>
<tr>
<td>+ $35.70</td>
<td>+ $35.70</td>
<td>+ $35.70</td>
</tr>
<tr>
<td>30</td>
<td>120 30</td>
<td>$ 120 30</td>
</tr>
</tbody>
</table>

Find the sum.

2. $3.09 + $8.92

3. $26.08 + $41.39

4. $7.27 + $26.43

5. $30.47 + $28.56

Find the sum.

6. $9.57 + $4.09

7. $89.36 + $3.85

8. $23.75 + $10.98

9. $8.52 + $36.07

10. $48.92 + $7.08

11. $60.45 + $17.42

12. $58.02 + $73.54

13. $61.74 + $60.57

Problem Solving

14. Lena bought new inline skates for $49.99. The sales tax was $4.13. How much did Lena spend in all for her new inline skates?
Sandi wanted to buy a new coat online. She figured out that the cost of the coat, with shipping, would be $84.24. The next week, Sandi bought the same coat in a local store on sale for a total of $52.47. How much did Sandi save by buying the coat on sale?

You subtract money amounts in the same way as you subtract whole numbers.

**Use place value.**

Subtract. $84.24 − $52.47

Use the decimal point to line up the digits. Work from right to left. Check each place to see if you need to regroup to subtract.

<table>
<thead>
<tr>
<th>STEP 1</th>
<th>STEP 2</th>
<th>STEPS 3 and 4</th>
<th>STEP 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regroup 2 dimes and 4 pennies as 1 dime and 14 pennies. Subtract the pennies.</td>
<td>Regroup 4 dollars and 1 dime as 3 dollars and 11 dimes. Subtract the dimes.</td>
<td>Subtract the ones. Subtract the tens.</td>
<td>Insert the decimal point and dollar sign.</td>
</tr>
<tr>
<td>114 $84.24</td>
<td>11 3 114 $84.24</td>
<td>11 3 114 $84.24</td>
<td>11 3 114 $84.24</td>
</tr>
<tr>
<td>$52.47 − $52.47</td>
<td>$52.47 − $52.47</td>
<td>$52.47 − $52.47</td>
<td>$52.47 − $52.47</td>
</tr>
<tr>
<td>7 77</td>
<td>77 31 77</td>
<td>77 31 77</td>
<td></td>
</tr>
</tbody>
</table>

So, Sandi saved $31.77.
1. Find the difference. Regroup as needed.

\[
\begin{array}{c}
\$7.14 \\
\$4.38
\end{array}
\]

Find the difference.

2. \( \begin{array}{c} \$5.89 \\
- \$3.16 \end{array} \)

3. \( \begin{array}{c} \$30.07 \\
- \$11.32 \end{array} \)

4. \( \begin{array}{c} \$60.00 \\
- \$42.75 \end{array} \)

5. \( \begin{array}{c} \$99.08 \\
- \$91.36 \end{array} \)

On Your Own

Find the difference.

6. \( \begin{array}{c} \$9.08 \\
- \$7.26 \end{array} \)

7. \( \begin{array}{c} \$73.45 \\
- \$12.13 \end{array} \)

8. \( \begin{array}{c} \$90.00 \\
- \$42.17 \end{array} \)

9. \( \begin{array}{c} \$80.03 \\
- \$49.53 \end{array} \)

10. \( \begin{array}{c} \$15.36 \\
- \$2.73 \end{array} \)

11. \( \begin{array}{c} \$84.00 \\
- \$27.85 \end{array} \)

12. \( \begin{array}{c} \$74.19 \\
- \$8.46 \end{array} \)

13. \( \begin{array}{c} \$79.62 \\
- \$23.58 \end{array} \)

Problem Solving Real World

14. Bert earned $78.70 last week. This week he earned $93.00. How much more did he earn this week than last week?

\[
\text{This week's earnings} - \text{last week's earnings} = \text{the difference}
\]

\[
\$93.00 - \$78.70 = \$14.30
\]
Unlock the Problem

At a visit to the Book Fair, Jana buys 7 hardcover books and 5 paperback books. She is going to give an equal number of books to each of her three cousins. How many books will each of Jana’s cousins get?

To find the value of an expression involving parentheses, you can use the order of operations. Remember, the order of operations is a special set of rules that give you the order in which calculations are done in an expression.

First, perform operations inside the parentheses.

Then, multiply and divide from left to right.

Finally, add and subtract from left to right.

Use the order of operations to find the value of \((7 + 5) ÷ 3\).

**STEP 1**
Perform operations in parentheses.

\[(7 + 5) ÷ 3\]

\[
\underline{12} ÷ 3
\]

So, each of Jana’s cousins will get 4 books.

**Math Talk**

- What if Jana decides to keep 3 books for herself? How will this change the expression? How many books will each of Jana’s cousins get?

What operation should you do first to find the values of \((6 + 2) \times 3\) and \(6 + (2 \times 3)\)? What is the value of each expression?
Write correct if the operations are listed in the correct order. If not correct, write the correct order of operations.

1. \((4 + 5) \times 2\) multiply, add

2. \(8 \div (4 \times 2)\) multiply, divide

3. \(12 + (16 \div 4)\) add, divide

4. \(9 + 2 \times (3 - 1)\) add, multiply, subtract

Follow the order of operations to find the value of the expression. Show each step.

5. \(6 + (2 \times 5)\)

6. \(18 - (12 \div 4)\)

7. \(8 \times (9 - 3)\)

8. \((12 + 8) \div 2 \times 3\)

9. \(6 + (9 \div 3)\)

10. \((3 \times 6) \div 2\)

11. \((49 \div 7) + 5\)

12. \(9 \times (8 - 2)\)

13. \(45 \div (17 - 2)\)

14. \((32 + 4) \div 9 - 2\)

15. \(8 \times 9 - (12 - 8)\)

16. \((36 - 4) + 8 \div 4\)

On Your Own

Follow the order of operations to find the value of the expression. Show each step.

17. Mr. Randall bought 4 shirts, which were on sale. The shirts were originally priced $20. The sales price of the shirts was $5 less than the original price. Write and find the value of an expression for the total amount that Mr. Randall paid for the shirts.
A charity asked 10 volunteers to hand out 2,000 flyers about a fund-raising event. Each volunteer will get the same number of flyers. How many flyers will each volunteer hand out?

You can use patterns and a basic fact to divide by multiples of ten.

**Example 1** Find $2,000 \div 10$.

Think: I know that $2 \div 1 = 2$, so $20 \div 10 = 2$.

\[
\begin{align*}
20 & \div 10 = 2 \\
200 & \div 10 = 20 \\
2,000 & \div 10 = 200
\end{align*}
\]

So, each volunteer will hand out ________ flyers.

**Describe** the pattern used to divide 2,000 by 10.

**Example 2** Find $2,800 \div 40$.

$28 \div 4 = 7$, so $280 \div 40 = ____$. 

$2,800 \div 40 = ____$. 

Math Talk

*Explain* how you can use basic facts to help divide by multiples of ten.
1. Find 6,000 ÷ 20.

Think: I can use patterns to divide, starting with 60 ÷ 20.

60 ÷ 2 = _________, so 60 ÷ 20 = _________.

600 ÷ 20 = ________

6,000 ÷ 20 = ________

2. 8,000 ÷ 20 = ________

3. 4,000 ÷ 40 = ________

4. 1,200 ÷ 60 = ________

5. 9,000 ÷ 30 = ________

6. 5,000 ÷ 50 = ________

7. 1,800 ÷ 60 = ________

8. 7,000 ÷ 10 = ________

9. 3,200 ÷ 80 = ________

10. 6,300 ÷ 90 = ________

11. A group of musicians wants to sell a total of 1,000 tickets for 20 concerts. Suppose they sell the same number of tickets for each concert. How many tickets will they sell for each concert? Explain how you solved the problem.
Unlock the Problem

Activity Materials ■ base-ten blocks

There are 154 children participating in a soccer tournament. There are 11 equal-sized teams of children. How many children are on each team?

STEP 1
Use base-ten blocks to model 154 children. Show 154 as 1 hundred 5 tens 4 ones. Draw 11 ovals for the teams.

STEP 2
Share the base-ten blocks equally among 11 groups. Since there are not enough hundreds to share equally, regroup 1 hundred as 10 tens. There are now 15 tens. Share the tens and draw a vertical line segment for each ten.

STEP 3
If there are any tens left over, regroup each as 10 ones. Share the ones equally among 11 groups. Draw a small circle for each one.

There are ______ ten(s) and ______ one(s) in each group.

So, there are ______ children on each team.

• Explain why you need to regroup in Step 3.

• Explain how you can check your answer.

Math Talk Mathematical Practices

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1. Use base-ten blocks to find $182 \div 14$. Describe the steps you took to find your answer.


Use base-ten blocks to divide.

2. $60 \div 12 = \underline{\hspace{2cm}}$

3. $135 \div 15 = \underline{\hspace{2cm}}$

On Your Own

Use base-ten blocks to divide.

4. $180 \div 10 = \underline{\hspace{2cm}}$

5. $150 \div 15 = \underline{\hspace{2cm}}$

6. $88 \div 11 = \underline{\hspace{2cm}}$

7. $96 \div 16 = \underline{\hspace{2cm}}$

8. $176 \div 11 = \underline{\hspace{2cm}}$

9. $156 \div 13 = \underline{\hspace{2cm}}$

Problem Solving

10. Nicole has $250 in ten-dollar bills. How many ten-dollar bills does Nicole have?


11. At Dante’s party, 16 children share 192 crayons. At Maria’s party, 13 children share 234 crayons. Each party splits the crayons up equally among the children attending. How many more crayons does each child at Maria’s party get than each child at Dante’s party? Explain.


16. Ellis bought groceries that were worth $99.86. After using coupons, the bill was $84.92. How much did Ellis save by using coupons?

$99.86 - $84.92 = $14.94

Ellis saved $14.94 by using coupons.
Fill in the bubble completely to show your answer.

17. Taby buys a dog leash for $18.50 and a dog collar for $12.75. What is the total cost of the leash and the collar?
   A $5.75
   B $6.25
   C $30.25
   D $31.25

18. Mr. Martin pays $35.93 for shoes for himself and $18.67 for shoes for his son. How much more do Mr. Martin’s shoes cost than his son’s?
   A $17.26
   B $17.36
   C $23.24
   D $54.60

19. Chris and Susan each collect baseball cards. Chris has 75 cards and Susan has 93 cards. They want to combine their collections and divide the cards evenly between them. Which expression can they use to find the number of cards each of them should have?
   A 75 + 93 ÷ 2
   B 75 + (93 ÷ 2)
   C (75 + 93) × 2
   D (75 + 93) ÷ 2

20. A store expects 4,000 customers during its 20-hour sale. Suppose the same number of customers arrives each hour. How many customers come each hour?
   A 20
   B 200
   C 2,000
   D 8,000
Unlock the Problem

The population of Idaho is about 1,550,000.
Write 1,550,000 in standard form, word form, and expanded form.

You know how to read and write numbers through hundred thousands. The place-value chart can be expanded to help you read and write greater numbers, like 1,550,000.

One million is 1,000 thousands and is written as 1,000,000. The millions period is to the left of the thousands period on a place-value chart.

<table>
<thead>
<tr>
<th>MILLIONS</th>
<th>THOUSANDS</th>
<th>ONES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hundreds</td>
<td>Tens</td>
<td>Ones</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>1 × 1,000,000</td>
<td>5 × 100,000</td>
<td>5 × 10,000</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The place value of the 1 in 1,550,000 is millions.

Standard form: 1,550,000
Word Form: One million, five hundred fifty thousand
Expanded Form: 1,000,000 + 500,000 + 50,000

Try This! Use place value to read and write the number.

Standard Form: _____________

Word Form: Sixty-two million, eighty thousand, one hundred twenty-six

Expanded Form: 60,000,000 + __________________ + 80,000 + __________________ + 20 + 6

Essential Question How can you read, write, and represent whole numbers through millions?
1. Write the number 3,298,076 in word form and expanded form.

Word Form: ____________________________

Expanded Form: ________________________

2. fifty million, three thousand, eighty-seven

3. $60,000,000 + 400,000 + 200 + 30 + 9$

4. $70,000,000 + 8,000,000 + 20,000 + 8$

5. twenty million, eleven thousand, twelve

Write the value of the underlined digit.

6. $3,356,000$  

7. $45,687,909$  

8. $70,000,044$  

9. $30,051,218$

10. According to one organization, there are about 93,600,000 pet cats and about 77,500,000 pet dogs in the U.S. Are there more pet cats or pet dogs? Explain how you know.
Decimals and Place Value

Essential Question: How can you use place value to read, write, and represent decimals?

CONNECT: Decimals, like whole numbers, can be written in standard form, word form, and expanded form.

Unlock the Problem

One of the world’s tiniest frogs lives in Asia. Adult males range in length from about 1.06 to 1.28 centimeters, about the size of a pea.

You can use a place-value chart to help you understand decimals. Whole numbers are to the left of the decimal point in the place-value chart, and decimal amounts are to the right of the decimal point. The value of each place is one-tenth of the place to its left.

Use a place-value chart.

Write each of the decimals on a place-value chart. Be sure to line up each place and the decimal point.

<table>
<thead>
<tr>
<th>Ones</th>
<th>Tenths</th>
<th>Hundredths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>

The place-value position of the digit 8 in 1.28 is hundredths. The value of the digit 8 in 1.28 is 8 hundredths, or \(8 \times \frac{1}{100}\) or 0.08.

You can also write 1.28 in word form and expanded form.

Word form: one and twenty-eight hundredths

Expanded form: \(1 + 0.2 + 0.08\)

Try This! Use place value to read and write the decimal.

Standard Form: __________

Word Form: three and forty-six hundredths

Expanded Form: \(3 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}\)
1. Write the decimal 4.06 in word form and expanded form.

   Word Form: ____________________________
   
   Expanded Form: ____________________________

2. Read and write the decimal in two other forms.
   
   2. five and two tenths
   ____________________________
   
   3. six and eight hundredths
   ____________________________

3. Ani was told to write the number four and eight hundredths. She wrote 4.8. Explain whether or not you think Ani is correct. If you think she is not correct, write the number correctly.

   ____________________________

4. On Your Own

   Read and write the decimal in two other forms.
   
   4. seven and three hundredths:
   ____________________________
   
   5. two and five hundredths
   ____________________________

5. Write the value of the underlined digit.
   
   6. 4.56
   ____________________________
   
   7. 5.09
   ____________________________
   
   8. 7.4
   ____________________________
   
   9. 1.32
   ____________________________

6. Problem Solving

   10. James is 1.63 meters tall. Write James’s height in word form. Explain how you found your answer.

   ____________________________
   ____________________________
   ____________________________

   11. Ani was told to write the number four and eight hundredths. She wrote 4.8. Explain whether or not you think Ani is correct. If you think she is not correct, write the number correctly.

   ____________________________
   ____________________________
Unlock the Problem

Ami sells fruits and nuts at an outdoor market. She sold a bag of nuts that weighed 1.35 pounds. About how much did the bag of nuts weigh, rounded to the nearest whole number?

You know that you can use a number line or place value to round whole numbers. You can use the same strategies to round decimals.

Use a number line.

To round a decimal to the nearest whole number, find the whole numbers it is between.

___ < 1.35 < ___

Use a number line to see which whole number 1.35 is closer to.

1.35

1.35 is closer to ___ than ___.

So, the bag of nuts weighed about ___ pound.

1. What if Ami sold a bag of nuts that weighed 2.82 pounds? About how much does the bag weigh, rounded to the nearest whole number?

2. Describe how you would round $3.90 to the nearest whole dollar.

—–
1. Round $2.67 to the nearest dollar. Locate and mark $2.67 on the number line. Which whole dollar is it closest to? ________

$2 $3

Round to the nearest dollar or to the nearest whole number.

2. $0.78
3. 2.1
4. 3.5
5. $4.50

   _______  _______  _______  _______

On Your Own

Round to the nearest dollar or to the nearest whole number.

6. $1.70
7. 2.2
8. $3.99
9. 3.45

   _______  _______  _______  _______

10. $1.53
11. 0.9
12. $0.19
13. 4.38

   _______  _______  _______  _______

Problem Solving

14. Candice spent $13.55 at the arts and crafts fair. How much money did Candice spend, rounded to the nearest dollar?

15. Mr. Marsh bought 2.25 pounds of American cheese. About how many pounds of cheese did Mr. Marsh buy?
Unlock the Problem

Hummingbirds are small, fast, light birds that feed on flowers, trees, and insects. Suppose a particular hummingbird weighs 0.16 ounces. A nickel weighs about 0.18 ounces. Does the hummingbird weigh more or less than a nickel?

Use a place-value chart.

Write each of the decimals on a place-value chart. Be sure to line up each place and the decimal point. Then compare the numbers in each place.

<table>
<thead>
<tr>
<th>Ones</th>
<th>Tenths</th>
<th>Hundredths</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

0 = 0 1 = _____ 6 < _____

Since 6 8, 0.16 0.18.

So, the hummingbird weighs ________________ a nickel.

Try This! Use a place-value chart to compare the decimals.

Write <, >, or =.

A. 1.32 __ 1.34
B. 0.67 __ 0.6
C. 0.99 __ 0.99
1. Use the place-value chart below to compare the decimals. Write <, >, or =.

<table>
<thead>
<tr>
<th>Ones</th>
<th>Tenths</th>
<th>Hundredths</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

3 = 3  0 =  5  1

So, 3.05 > 3.01.

Compare the decimals. Write <, >, =.

2. 7.24  >  7.42
3. 8.80  =  8.81
4. 0.11  <  0.11
5. 4.33  >  4.31

On Your Own

Compare the decimals. Write <, >, =.

6. 0.04  =  0.04
7. 1.1    >  1.7
8. 0.34  <  0.36
9. 4.04  >  4.01

10. 9.67  >  9.63
11. 1.4    >  1.42
12. 0.02  <  0.2
13. 5.4    =  5.40

Use a place-value chart to order the decimals from least to greatest.

14. 0.59, 0.51, 0.52
15. 7.15, 7.18, 7.1
16. 1.3, 1.33, 1.03

Problem Solving

17. Jill, Ally, and Maria ran the 50-yard dash. Jill ran the race in 6.87 seconds. Ally ran the race in 6.82 seconds. Maria ran the race in 6.93 seconds. Who ran the race the fastest? **Explain** how you can use a place-value chart to find the answer.
Unlock the Problem

Architects make scale models of buildings before they build the real thing. The height of an actual building is going to be 1,200 feet. The scale model is 12 feet tall. How many times the height of the model is the height of the actual building?

You can decompose a multiple of 10, 100, or 1,000 by finding factors.

**One Way** Use mental math and a pattern.

Decompose 1,200.

1,200 = ________ × 1
1,200 = ________ × 10
1,200 = ________ × 100

So, the building is 100 times the height of the model.

**Another Way** Use place value.

Decompose 1,200.

1,200 = 12 hundreds = 12 × _______

So, 1,200 = 12 × 100.

- What do you need to find?
- Circle the numbers you need to use to solve the problem.

**Math Talk** Mathematical Practices

Explain the difference between factors and multiples.

- Explain how you use mental math and a pattern to find factors of multiples of 10, 100, or 1,000.
1. Complete the exercise below to decompose 2,800.

   $2,800 = \underline{\hspace{2cm}} \times 1$

   $2,800 = \underline{\hspace{2cm}} \times 10$

   $2,800 = \underline{\hspace{2cm}} \times 100$

2. Complete the exercise below to decompose 930.

   $930 = \underline{\hspace{2cm}} \text{tens} = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$

Decompose each number.

3. $80 = \underline{\hspace{2cm}}$

4. $320 = \underline{\hspace{2cm}}$

5. $8,000 = \underline{\hspace{2cm}}$

6. $90 = \underline{\hspace{2cm}}$

7. $40 = \underline{\hspace{2cm}}$

8. $890 = \underline{\hspace{2cm}}$

9. $300 = \underline{\hspace{2cm}}$

10. $7,000 = \underline{\hspace{2cm}}$

11. $3,700 = \underline{\hspace{2cm}}$

Correct the error. Write the correct decomposition.

12. $560 = 56 \times 100$

13. $4,300 = 43 \times 1,000$

14. $6,000 = 60 \times 10$

15. Jon goes to the bank with $990. How many ten-dollar bills can he get?
   Show how you found your answer.
Unlock the Problem

You know how to use a rule and a first term to write a sequence. Now, you will describe a sequence using a rule.

Describe a pattern.

A scientist counts the number of lily pads in a pond each day. She records the number of lily pads in the table below. How many lily pads will be in the pond on days 5 and 6?

<table>
<thead>
<tr>
<th>Day</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lilly Pads</td>
<td>8</td>
<td>16</td>
<td>32</td>
<td>64</td>
</tr>
</tbody>
</table>

**STEP 1** Describe the sequence.

**THINK:** How do I get from one term to the next?

Try multiplying by 2 since $8 \times 2 = 16$.

\[ \begin{array}{c}
8, 16, 32, 64 \\
\end{array} \]

Write a rule to describe the number of lily pads in the pond.

**RULE:**

**STEP 2** Find the next two terms in the sequence.

\[ \begin{array}{c}
\times 2, \times 2, \times 2, \times 2 \\
8, 16, 32, 64, \text{ _____, _____} \\
\end{array} \]

So, there will be _____ lily pads on day 5 and _____ lily pads on day 6.
1. Find the next two numbers in the pattern below.

\[ \times 3 \times 3 \times 3 \times 3 \times 3 \]

1, 3, 9, 27, ___, ___

Describe the pattern. Then find the next two numbers in the pattern.

2. 1, 2, 4, 8, ___, ___

3. 7, 14, 28, 56, ___, ___

4. 1, 4, 16, 64, ___, ___

5. 2, 6, 18, 54, ___, ___

6. 1, 5, 25, ___, 625

7. 3, 6, ___ , 24, ___

8. 2, ___ , 32, ___ , 512

9. A clothing store starts selling a new type of sneaker. The table shows the number of pairs of sneakers sold in the first four weeks. If the pattern continues, how many pairs of sneakers will the store sell in weeks 5 and 6? Explain.

<table>
<thead>
<tr>
<th>Week</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pairs Sold</td>
<td>5</td>
<td>10</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

Explain.
Checkpoint

Concepts and Skills

Round to the nearest whole dollar or to the nearest whole number.

1. $7.23  
2. 2.89  
3. 0.52  
4. $9.49  

Compare the decimals. Write <, >, or =.

5. 0.6  <  0.60  
6. 5.08  >  5.80  
7. 8.14  <  8.17  
8. 7.37  >  7.32  

Read and write the numbers in two other forms.

9. seventy-five million, three hundred thousand, two hundred seven  
10. 30,000,000 + 40,000 + 6,000 + 20 + 2  

Decompose each number.

11. 20 = __________  
12. 740 = __________  
13. 6,000 = __________

Problem Solving

A new music website is keeping track of the number of members that join. The table shows the number of members in the first four days. If the pattern continues, how many members will the website have on day 6? Explain how you found your answer.

<table>
<thead>
<tr>
<th>Day</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Members</td>
<td>5</td>
<td>15</td>
<td>45</td>
<td>135</td>
</tr>
</tbody>
</table>
15. A particular female Asian elephant weighs 4.63 tons. What is this decimal written in word form?
   A four and sixty-three tenths  
   B four and sixty-three hundredths  
   C four hundred and sixty-three  
   D four and sixty-three thousandths

16. Joe, Adam, Michael, and Carl all work at an office. Joe earns $15.53 per hour. Adam earns $15.59 per hour. Carl earns $15.95 per hour. Michael earns $15.91. Who earns the most money per hour?
   A Joe  
   B Adam  
   C Carl  
   D Michael

17. Which number is ninety-eight million, forty thousand, six hundred fifty three written in another form?
   A 98,040,653  
   B 98,400,653  
   C 98,046,053  
   D 98,40,653

18. Which rule describes the pattern below?
   3, 12, 48, 192
   A Multiply by 2.  
   B Multiply by 3.  
   C Add 9.  
   D Multiply by 4.
Add Related Fractions

Essential Question  How can you add fractions when one denominator is a multiple of the other?

When you add fractions, you find how many equal-size pieces there are in all. The denominator shows the size of the pieces. To add fractions with denominators that are not the same, first find equivalent fractions with the same denominator.

Activity

Materials  ■ fraction strips

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

STEP 1  Model the problem.

Think: To add fractions, you need to count equal size pieces. The $\frac{1}{2}$ strip and the $\frac{1}{6}$ strip are different sizes.

STEP 2  Show $\frac{1}{2}$ using $\frac{1}{6}$ strips.

$\frac{1}{2} = \frac{3}{6}$

STEP 3  Add. Use the equivalent fraction you found.

Find $\frac{3}{6} + \frac{2}{6}$.

How many $\frac{1}{6}$ strips are there? _____

Write the sum. $\frac{3}{6} + \frac{2}{6} = _____$

So, $\frac{1}{2} + \frac{2}{6} = _____$.

- Describe how the sizes of the $\frac{1}{2}$ strip and the $\frac{1}{6}$ strip compare. Then describe how the denominators of the fractions $\frac{1}{2}$ and $\frac{1}{6}$ are related.

Math Talk  Mathematical Practices

Explain how you know $\frac{1}{2}$ and $\frac{3}{6}$ are equivalent fractions.
1. Explain which fraction strips you could use to add $\frac{1}{3}$ and $\frac{3}{6}$.

2. Use fraction strips to add $\frac{1}{4} + \frac{2}{8}$.

$$\frac{1}{4} + \frac{2}{8} = \underline{\ ?}$$

Add. Use fraction strips to help.

3. $\frac{1}{4} + \frac{1}{2} = \underline{\ ?}$

4. $\frac{1}{2} + \frac{3}{8} = \underline{\ ?}$

5. $\frac{1}{2} + \frac{3}{10} = \underline{\ ?}$

On Your Own

Add. Use fraction strips to help.

6. $\frac{1}{3} + \frac{2}{6} = \underline{\ ?}$

7. $\frac{1}{5} + \frac{3}{10} = \underline{\ ?}$

8. $\frac{3}{8} + \frac{1}{4} = \underline{\ ?}$

9. $\frac{5}{12} + \frac{1}{3} = \underline{\ ?}$

10. $\frac{1}{3} + \frac{8}{12} = \underline{\ ?}$

11. $\frac{8}{10} + \frac{1}{5} = \underline{\ ?}$

Problem Solving

12. Paola used $\frac{1}{4}$ of a carton of eggs today and $\frac{4}{12}$ of the carton yesterday. What fraction of the carton of eggs did she use in all? Explain how you found your answer.
Subtract Related Fractions

Essential Question How can you subtract fractions when one denominator is a multiple of the other?

When you subtract fractions, you must use equal-size pieces.
To subtract fractions with different denominators, first find equivalent fractions with the same denominator. You can also compare to find the difference.

Activity
Materials fraction strips

Find \( \frac{5}{8} - \frac{1}{4} \).

One Way Find an equivalent fraction.

Model the problem.

Think: You need to subtract \( \frac{1}{4} \) from \( \frac{5}{8} \), but the \( \frac{1}{4} \) strip and the \( \frac{1}{8} \) strips are different sizes.

Show \( \frac{1}{4} \) using \( \frac{1}{8} \) strips.

\( \frac{1}{4} = \frac{2}{8} \)

Subtract. Use the equivalent fraction you found.

Find \( \frac{5}{8} - \frac{2}{8} \).

Write the difference. \( \frac{5}{8} - \frac{2}{8} = \frac{3}{8} \)

So, \( \frac{5}{8} - \frac{1}{4} = \frac{3}{8} \).

Another Way Compare to find the difference.

Model the problem.

Think: The \( \frac{1}{4} \) strip is the same size as two \( \frac{1}{8} \) strips.

Compare the \( \frac{1}{4} \) strip to the five \( \frac{1}{8} \) strips. Find the difference.

\( \frac{5}{8} - \frac{1}{4} = \frac{3}{8} \).

Math Talk

Explain how the \( \frac{1}{4} \) strip is related to the \( \frac{1}{8} \) strip. Then describe how the denominators 4 and 8 are related.
1. A student subtracted $\frac{2}{3}$ from 1 whole as shown at the right. Explain the student’s method. Then find the difference.

2. Use fraction strips to subtract $\frac{5}{6} - \frac{1}{2}$.

   $\frac{5}{6} - \frac{1}{2} = \underline{\hspace{2cm}}$


   $\frac{1}{2} - \frac{3}{8} = \underline{\hspace{2cm}}$

   $1 - \frac{2}{5} = \underline{\hspace{2cm}}$

   $\frac{2}{4} - \frac{2}{12} = \underline{\hspace{2cm}}$


   $\frac{4}{5} - \frac{2}{10} = \underline{\hspace{2cm}}$

   $\frac{7}{8} - \frac{3}{4} = \underline{\hspace{2cm}}$

   $\frac{5}{6} - \frac{2}{3} = \underline{\hspace{2cm}}$

   $\frac{7}{10} - \frac{2}{5} = \underline{\hspace{2cm}}$

   $\frac{2}{6} - \frac{1}{3} = \underline{\hspace{2cm}}$

   $\frac{6}{8} - \frac{1}{2} = \underline{\hspace{2cm}}$

5. Boris had $\frac{2}{3}$ of a book left to read. He read $\frac{1}{6}$ of the book today.

   What fraction of the book does he have left to read now?

   Explain how you found your answer.
Unlock the Problem

One Way Use a model.

A. Serena uses $\frac{2}{3}$ yard of fabric to make a pillow. How much fabric does she need to make 3 pillows?
   - Shade the model to show 3 groups of $\frac{2}{3}$.
   - Write an expression for three groups of $\frac{2}{3}$: _____ $\times$ _____.
   - What can you say about the product when $\frac{2}{3}$ is multiplied by a whole number? Write greater than or less than.
     The product is ____ $\frac{2}{3}$.

B. Serena has 3 yards of fabric. She uses $\frac{2}{3}$ of it to make a blanket. How much fabric does she use to make the blanket?
   - There are 3 wholes. Each represents one yard.
   - Shade $\frac{2}{3}$ of each whole.
   - Write an expression for $\frac{2}{3}$ of three wholes: _____ $\times$ _____
   - What can you say about the product when 3 is multiplied by a fraction less than 1? Write greater than or less than.
     The product is ____ 3.

Another Way Use a number line.

A. Show $\frac{2}{3} \times 2$.

B. Show $\frac{2}{3} \times 3$.

Complete each statement with greater than or less than.

- The product of $\frac{2}{3}$ and 2 is ____________ $\frac{2}{3}$.
- The product of a whole number greater than 1 and $\frac{2}{3}$ will be ____________ the whole number factor.

Math Talk Mathematical Practices

What if a different fraction was multiplied by 2 and 3? Would your statements still be true? Explain.
1. Complete the statement with greater than or less than.

   \[ 2 \times \frac{3}{4} \text{ will be } \underline{\hphantom{3}} \frac{3}{4} \text{.} \]

Complete each statement with greater than or less than.

2. \[ 3 \times \frac{2}{5} \text{ will be } \underline{\hphantom{3}} 3 \text{.} \]

3. \[ 3 \times \frac{1}{3} \text{ will be } \underline{\hphantom{3}} \frac{1}{3} \text{.} \]

4. \[ 3 \times \frac{3}{8} \text{ will be } \underline{\hphantom{3}} \frac{3}{8} \text{.} \]

5. \[ \frac{5}{6} \times 5 \text{ will be } \underline{\hphantom{3}} \frac{5}{6} \text{.} \]

6. \[ \frac{3}{10} \times 6 \text{ will be } \underline{\hphantom{3}} \frac{3}{10} \text{.} \]

7. \[ 4 \times \frac{5}{9} \text{ will be } \underline{\hphantom{3}} 4 \text{.} \]

8. Celia wants to sew 4 pillows. She needs \( \frac{3}{8} \) yard of fabric for each pillow. Will she need more than \( \frac{3}{8} \) yard or less than \( \frac{3}{8} \) yard of fabric to make all the pillows? Explain.

9. Rohan walks \( \frac{3}{4} \) mile to school each day. After 5 days, will Rohan have walked more than 5 miles or less than 5 miles to school? Explain.
Mr. Jones is making snacks for his family. He has 3 cups of almonds and is dividing them into $\frac{1}{2}$-cup portions. How many portions can he make?

You have used repeated subtraction to divide whole numbers. Now, you will use repeated subtraction to solve a problem involving division by a fraction.

Use repeated subtraction to divide 3 by $\frac{1}{2}$.

**STEP 1** Start at 3 and count back $\frac{1}{2}$.

**STEP 2** Subtract by $\frac{1}{2}$ until you reach 0 or get as close to it as possible.

**STEP 3** Find the number of times you counted back by $\frac{1}{2}$.

You counted _____ groups of $\frac{1}{2}$ to reach 0.

So, Mr. Jones can make _____ half-cup portions of almonds.
1. Use repeated subtraction and the number line to find $2 \div \frac{1}{4}$.

\[
\begin{array}{ccccccccccc}
0 & & & & & & & & & & & 1 & & & & 2 & & & & & \frac{1}{4} & 2 & 3 & 4 & 1 & 1\frac{1}{2} & 2 & 2\frac{1}{4}
\end{array}
\]

Start subtracting at ______.

Count back by groups of ______.

How many groups did you count to reach 0? ______

Use repeated subtraction to divide.

2. $2 \div \frac{1}{3}$

3. $5 \div \frac{1}{2}$

4. $1 \div \frac{1}{8}$

5. $1 \div \frac{1}{5}$

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

7. $4 \div \frac{1}{3}$

8. $2 \div \frac{1}{5}$

9. $7 \div \frac{1}{2}$

10. $3 \div \frac{1}{4}$

On Your Own

Use repeated subtraction to divide.

11. You are putting raisins into snack bags. You have 3 cups of raisins. You want to put $\frac{1}{3}$ cup of raisins in each bag. How many bags can you make?

12. Margaret is cutting straws that are 4 inches long into $\frac{1}{2}$-inch pieces. She has two straws. She needs twenty $\frac{1}{2}$-inch pieces. Does she have enough to cut 20 pieces? Explain.
Unlock the Problem

Mavi and her 2 sisters want to share 4 small pizzas equally. How much pizza will each person have?

Think: What is 4 divided by 3, or $4 \div 3$?

Each pizza is divided into _____ equal slices.

How many slices are in 4 pizzas? _____

What fraction of the pizza is each slice? _____

How many $\frac{1}{3}$-size slices does each sister get? _____

What fraction of the pizzas does each sister get? _____

So, $4 \div 3$ is the same as $\frac{4}{3}$.

How can you write $\frac{4}{3}$ as a mixed number?
1. Alex baked a pan of corn bread and cut it into 12 equal-size pieces. Alex and his 3 sisters want to share the pieces equally. What division problem can you write to solve the problem? ________________

Write the division problem as a fraction. ________________

Write the division problem as a fraction. Write each fraction greater than 1 as a whole number or mixed number.

2. \(6 \div 2\)  
3. \(1 \div 4\)  
4. \(1 \div 3\)  
5. \(32 \div 8\)

\[\text{________} \quad \text{________} \quad \text{________} \quad \text{________}\]

On Your Own

Write the division problem as a fraction. Write each fraction greater than 1 as a whole number or mixed number.

6. \(5 \div 6\)  
7. \(3 \div 2\)  
8. \(1 \div 8\)  
9. \(2 \div 4\)

\[\text{________} \quad \text{________} \quad \text{________} \quad \text{________}\]

10. \(12 \div 3\)  
11. \(9 \div 4\)  
12. \(11 \div 2\)  
13. \(8 \div 6\)

\[\text{________} \quad \text{________} \quad \text{________} \quad \text{________}\]

Problem Solving

14. Stefan and his 2 friends want to share 16 muffins equally. Will each friend get more than or less than 5 whole muffins? Explain how you know.

\[\text{__________________________}\]

\[\text{__________________________}\]

\[\text{__________________________}\]

\[\text{__________________________}\]
Complete each statement with greater than or less than.

1. $3 \times \frac{3}{9}$ will be __________
2. $\frac{7}{8} \times 3$ will be __________ $\frac{7}{8}$

Add or subtract. Use fraction strips to help.

3. $\frac{1}{2} + \frac{2}{10} = $ __________
4. $\frac{1}{4} + \frac{5}{8} = $ __________
5. $\frac{4}{6} + \frac{1}{3} = $ __________

6. $1 - \frac{5}{6} = $ __________
7. $\frac{7}{8} - \frac{1}{4} = $ __________
8. $\frac{3}{5} - \frac{4}{10} = $ __________

Write the division problem as a fraction. Write each fraction greater than 1 as a whole number or mixed number.

9. $7 \div 8 = $ __________
10. $8 \div 5 = $ __________
11. $16 \div 3 = $ __________

Use repeated subtraction to divide.

12. $3 \div \frac{1}{5} = $ __________
13. $4 \div \frac{1}{2} = $ __________
14. $6 \div \frac{1}{3} = $ __________

Manny had $\frac{3}{4}$ of his paper written. He wrote another $\frac{1}{8}$ of the paper today. What fraction of the paper does he have left to write now?

**Explain** how you found your answer.

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Fill in the bubble completely to show your answer.

16. Mr. Martin is going to paint 5 small rooms. He needs \( \frac{3}{4} \) gallon of paint for each room. How much paint will he need to paint all of the rooms?
   - A  less than \( \frac{3}{4} \) gallon
   - B  more than \( \frac{3}{4} \) gallon
   - C  exactly \( \frac{3}{4} \) gallon
   - D  exactly 5 gallons

17. A chef is preparing individual-size pies. She has 4 cups of strawberries to put in the pies. She wants to put \( \frac{1}{4} \) cup of strawberries in each pie. How many pies can she make?
   - A  4
   - B  8
   - C  14
   - D  16

18. Which shows the division problem \( 6 \div 4 \) written as a fraction or mixed number?
   - A  \( \frac{4}{6} \)
   - B  \( 1\frac{1}{4} \)
   - C  \( 1\frac{2}{4} \)
   - D  \( 2\frac{2}{4} \)

19. Pablo ate \( \frac{1}{4} \) of a pizza yesterday and \( \frac{3}{8} \) of the pizza today. What fraction of the pizza did he eat in all?
   - A  \( \frac{5}{8} \)
   - B  \( \frac{4}{12} \)
   - C  \( \frac{4}{8} \)
   - D  \( \frac{3}{8} \)
Locate Points on a Grid

**Essential Question** How can you use ordered pairs to locate points on a grid?

An ordered pair is a pair of numbers that names a point on a grid. The first number shows how many units to move horizontally. The second number shows how many units to move vertically.

\[(2, 4)\]

Move 2 units right from 0. Then move 4 units up.

At the airport, passengers travel from one terminal to another in shuttle buses. The shuttle buses travel in a route that begins at Terminal A. Where is Terminal A?

**Count units on the grid to find out.**

- Start at zero.
- Move right 5 units.
- From there, move up 9 units.

Terminal A is located at (5, 9).

**Try This!**

What terminal is located at (8, 3)? Explain how you know.

**Math Talk**

**Explain why (3, 6) and (6, 3) are two different ordered pairs.**

Getting Ready for Grade 5  GR39
1. To graph the point (6, 3), where do you start? In which direction and how many units will you move first? What will you do next? Describe the steps and record them on the grid.

Use the grid for Exercises 2–5. Write the ordered pair for each point.

2. A  
3. B  
4. C  
5. D

On Your Own

Use the grid for Exercises 6–13.
Write the ordered pair for each point.
6. E  
7. F  
8. G  
9. H

Write the point for each ordered pair.
10. (3, 8)  
11. (8, 9)  
12. (1, 9)  
13. (0, 5)

Problem Solving

There are four photos on each page of a photo album. Complete the table. Write the data in the table as ordered pairs. Then graph the ordered pairs on the grid. Use the number of pages as the first number and the number of photos as the second number in the ordered pair.

14.

<table>
<thead>
<tr>
<th>Number of Pages</th>
<th>1</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Photos</td>
<td>4</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
Rhonda is tiling the floor of her new sunroom. The diagram shows the layout of the tiles. Each tile measures 4 square feet. What is the area of Rhonda’s sunroom floor?

To find the area of the sunroom floor, you can combine the areas of the half tiles and the whole tiles.

**Find the area of the sunroom floor.**

**STEP 1** Find the area of the half tiles.

Count the number of half tiles. ___

1 tile = 4 square feet, so 1 half tile = 4 ÷ 2 or ___ square feet.

Multiply the number of half tiles by ___ square feet to find the area of the half tiles:

___ × ___ = ___ square feet

**STEP 2** Find the area of the whole tiles.

Find the number of whole tiles: \( b \times h = ___ \times ___ = ___ \) tiles

Since the area of 1 tile is ___ square feet, multiply the number of whole tiles by ___ to find the area of the whole tiles.

___ × ___ = ___ square feet

**STEP 3** Find the total area.

Add the areas of the half tiles and whole tiles.

half tiles whole tiles

___ + ___ = ___ square feet

So, the area of Rhonda’s sunroom floor is ___ square feet.

The formula for the area of a rectangle is \( A = b \times h \) or \( l \times w \).

**Math Talk**

Explain how to find the area of 6 half tiles if 1 whole tile is 9 square inches.
Share and Show

1. Find the area of the shaded shape.
   **STEP 1** Find the area of the half squares:
   
   _____ half squares × _____ square yards = _____ square yards

   **STEP 2** Find the area of the whole squares:
   
   _____ × _____ = _____ squares
   _____ squares × _____ square yards = _____ square yards

   **STEP 3** Find the total area: _____ + _____ = _____ square yards

   Find the area of each shaded shape. Write the area in square units.

2. 1 square = 4 square yards

3. 1 square = 9 square feet

4. 1 square = 4 square meters

On Your Own

Find the area of each shaded shape. Write the area in square units.

5. 1 square = 9 square miles

6. 1 square = 16 square meters

7. 1 square = 25 square meters

Problem Solving

8. A mosaic table top is shown. Each square has an area of 5 square inches. What is the area of the table top? **Explain.**
Unlock the Problem

You can use properties of multiplication to help make multiplication of three factors easier.

Sam ships 4 boxes of car model kits to Toy Mart. Each box contains 16 cartons, with 6 kits in each carton. How many car model kits does Sam ship?

**Example** Find \(4 \times (16 \times 6)\).

**STEP 1**
Simplify the problem. Rewrite \(4 \times (16 \times 6)\) as a product of two factors.

\[
4 \times (16 \times 6) = 4 \times (\_ \times 16) \quad \text{Commutative Property}
\]

\[
= (4 \times \_ ) \times 16 \quad \text{Associative Property}
\]

\[
= \_ \times 16
\]

So, \(4 \times (16 \times 6) = 24 \times 16\).

So, Sam ships _________ car model kits.

**STEP 2**
Multiply.

\[
\begin{array}{c}
16 \\
\times 24 \\
\hline
\end{array}
\]

\[
\begin{array}{c}
\_ \\
\_ \\
\hline
\_ \\
\_ \\
\_ \quad \leftarrow 4 \times 16
\end{array}
\]

\[
\begin{array}{c}
\_ \quad \leftarrow 20 \times 16
\end{array}
\]

\[
\begin{array}{c}
\_ \quad \leftarrow \text{Add.}
\end{array}
\]

**Try This!**

\((18 \times 8) \times 3 = 18 \times (\_ \times \_) \quad \text{Associative Property}
\]

\[
= 18 \times \_
\]

\[
= \_ \quad \text{Explain how using properties makes it easier to multiple three factors.}
\]

Exampele

Find \(4 \times (16 \times 6)\).

**STEP 1**
Simplify the problem. Rewrite \(4 \times (16 \times 6)\) as a product of two factors.

\[
4 \times (16 \times 6) = 4 \times (\_ \times 16) \quad \text{Commutative Property}
\]

\[
= (4 \times \_ ) \times 16 \quad \text{Associative Property}
\]

\[
= \_ \times 16
\]

So, \(4 \times (16 \times 6) = 24 \times 16\).

So, Sam ships _________ car model kits.

**STEP 2**
Multiply.

\[
\begin{array}{c}
16 \\
\times 24 \\
\hline
\end{array}
\]

\[
\begin{array}{c}
\_ \\
\_ \\
\hline
\_ \\
\_ \\
\_ \quad \leftarrow 4 \times 16
\end{array}
\]

\[
\begin{array}{c}
\_ \quad \leftarrow 20 \times 16
\end{array}
\]

\[
\begin{array}{c}
\_ \quad \leftarrow \text{Add.}
\end{array}
\]

**Try This!**

\((18 \times 8) \times 3 = 18 \times (\_ \times \_) \quad \text{Associative Property}
\]

\[
= 18 \times \_
\]

\[
= \_ \quad \text{Explain how using properties makes it easier to multiple three factors.}
\]
1. Find the product of $7 \times (6 \times 13)$.

**STEP 1** Simplify the problem.

Rewrite $7 \times (6 \times 13)$ as a product of two factors.

$$7 \times (6 \times 13) = (\_ \times \_) \times 13$$

Associative Property

$$= \_ \times \_$$

**STEP 2** Multiply.

$$13 \times 42$$

Find each product.

2. $3 \times (14 \times 3) =$  

3. $2 \times (4 \times 13) =$  

4. $(16 \times 6) \times 3 =$  

**On Your Own**

Find each product.

5. $7 \times (17 \times 4) =$  

6. $(18 \times 4) \times 6 =$  

7. $9 \times (17 \times 5) =$  

8. $(5 \times 26) \times 3 =$  

9. $9 \times (19 \times 2) =$  

10. $(21 \times 4) \times 6 =$  

**Problem Solving**

11. There are 3 basketball leagues. Each league has 8 teams. Each team has 13 players. How many players are there in all 3 leagues?

12. There are 8 boxes of tennis balls. There are 24 cans of tennis balls in each box. There are 3 tennis balls in each can. How many tennis balls are there in all?
Find Area of the Base

Essential Question How can you find the area of the base of a rectangular prism?

Connect The base of a rectangle is different than the base of a rectangular prism. The base of a rectangle is a side, but the base of a rectangular prism is a rectangle. To find the area of a rectangle, use the formula \( A = b \times h \) or \( l \times w \).

Example

Ana is making a diorama for a class project. The diorama is in the shape of a rectangular prism. She wants to paint the bottom of the diorama. What is the area of the base?

The base shape is a rectangle.

Use a formula to find the area.

\[
A = b \times h
\]

\[
\text{base} = \underline{\text{inches}}
\]

\[
\text{height} = \underline{\text{inches}}
\]

\[
A = \underline{\text{}} \times \underline{\text{}}
\]

\[
A = \underline{\text{square inches}}
\]

So, the area of the base of the diorama is \( \underline{\text{square inches}} \).

Unlock the Problem

What shape is the base of the diorama?

What are the base and height of the base of the diorama?

Why would multiplying 11 by 5 give an incorrect answer for the area of the base?

Remember

Area of a rectangle: \( A = b \times h \) or \( l \times w \)

Area of a square: \( A = s \times s \)
1. Find the area of the base of the rectangular prism.

   The base shape is a ________________.
   
   length = _____ yards, width = _____ yards
   
   \( A = _____ \times _____ = _____ \) square yards
   
   So, the area of the base is _____ square yards.

Find the area of the base of the rectangular prism.

2.  

3.  

4.  

5.  

6.  

7.  

On Your Own

Find the area of the base of the rectangular prism.

5.  

6.  

7.  

Problem Solving

8. Julio makes sugar cubes for horses. Each sugar cube edge is 1 centimeter in length. He packs the sugar cubes in the box shown without gaps. Julio says he can fit 80 sugar cubes in the bottom layer. Is he correct? Explain.
Name ________________________________

Checkpoint

Concepts and Skills

Find each product.
1. \((13 \times 8) \times 5 = \) _____  
2. \(7 \times (12 \times 8) = \) _____  
3. \(4 \times (17 \times 3) = \) _____

Find the area of the shaded shape. Write the area in square units.
4. 1 square = 4 square yards
   -  
5. 1 square = 16 square feet
   -  
6. 1 square = 25 square meters
   -  

Find the area of the base of the rectangular prism.
7. 
   -  
8. 
   -  
9. 
   -  

Problem Solving Real World

10. There are 6 grades competing in a spelling bee. Each grade has 10 teams. Each team has 4 members. How many members are competing in the spelling bee?
   -  

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Fill in the bubble completely to show your answer.

11. There are 9 crates of oranges. There are 18 boxes of oranges in each crate. There are 6 bags of oranges in each box. How many bags of oranges are there in all?
   A 108
   B 162
   C 972
   D 1152

12. A small tiled balcony is shown. Each tile is 9 square inches. What is the area of the shaded section in square inches?
   A 20 square inches
   B 144 square inches
   C 162 square inches
   D 180 square inches

13. Which ordered pair names point A on the grid?
   A (1, 5)
   B (2, 3)
   C (3, 2)
   D (5, 1)

14. What is the area of the base of the rectangular prism?
   A 40 square meters
   B 48 square meters
   C 144 square meters
   D 432 square meters