Unlock the Problem

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.

\[
\begin{array}{c}
1 \\
$ 99.46 \\
+ \$ 73.49 \\
\hline
5
\end{array}
\]

**STEP 2**
Add the dimes.

\[
\begin{array}{c}
1 \\
$ 99.46 \\
+ \$ 73.49 \\
\hline
95
\end{array}
\]

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

\[
\begin{array}{c}
1 \\
$ 99.46 \\
+ \$ 73.49 \\
\hline
172.95
\end{array}
\]

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

\[
\begin{array}{c}
11 \\
$ 99.46 \\
+ \$ 73.49 \\
\hline
$172.95
\end{array}
\]

So, Carlos spent $172.95.

Try This! Find the sum.

**A.**

\[
\begin{array}{c}
$ 23.18 \\
+ \$ 57.45 \\
\hline
\end{array}
\]

**B.**

\[
\begin{array}{c}
$ 19.07 \\
+ \$ 65.28 \\
\hline
\end{array}
\]

Explain how you know when to regroup.
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>+ $35.70</td>
<td>+ $35.70</td>
</tr>
<tr>
<td>30</td>
<td>120</td>
<td>$120</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

On Your Own

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.

**STEP 1**
Regroup 2 dimes and 4 pennies as 1 dime and 14 pennies. Subtract the pennies.

\[
\begin{array}{c}
114 \\
\text{\$84.24} \\
- \quad \text{\$52.47} \\
- \quad 7
\end{array}
\]

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

\[
\begin{align*}
\$ 7.14 & \quad \$ 4.38 \\
\end{align*}
\]

Find the difference.

2. $5.89 - $3.16
3. $30.07 - $11.32
4. $60.00 - $42.75
5. $99.08 - $91.36

On Your Own

Find the difference.

6. $9.08 - $7.26
7. $73.45 - $12.13
8. $90.00 - $42.17
9. $80.03 - $49.53

10. $15.36 - $2.73
11. $84.00 - $27.85
12. $74.19 - $8.46
13. $79.62 - $23.58

Problem Solving

14. Bert earned $78.70 last week. This week he earned $93.00. How much more did he earn this week than last week?
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.
$(7 + 5) ÷ 3$

**STEP 2**
Use the order of operations. In this case, divide.
$12 ÷ 3$

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

- **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?

- **Math Talk** Mathematical Practices
  What operation should you do first to find the values of $(6 + 2) × 3$ and $6 + (2 × 3)$? 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. \((36 - 4) + 8 \div 4\)

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.
Divide by Multiples of Ten

Essential Question  How can you use patterns to divide by multiples of ten?

Unlock the Problem

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 ÷ 10.

Think: I know that 2 ÷ 1 = 2, so 20 ÷ 10 = 2.

20 ÷ 10 = 2
200 ÷ 10 = 20
2,000 ÷ 10 = 200

So, each volunteer will hand out __________ flyers.

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

Example 2  Find 2,800 ÷ 40.

28 ÷ 4 = 7, so 280 ÷ 40 = _____.

2,800 ÷ 40 = _____

Math Talk  Mathematical Practices

Explain how you can use basic facts to help divide by multiples of ten.
Share and Show

1. Find 6,000 \( \div \) 20.
   Think: I can use patterns to divide, starting with 60 \( \div \) 20.

<table>
<thead>
<tr>
<th>( 6 \div 2 = ) _______</th>
<th>60 ( \div ) 20 = _______</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 ( \div ) 20 = _______</td>
<td>6,000 ( \div ) 20 = _______</td>
</tr>
</tbody>
</table>

Divide. Use a pattern to help.

2. \( 8,000 \div 20 = \) _______ 3. \( 4,000 \div 40 = \) _______ 4. \( 1,200 \div 60 = \) _______

On Your Own

Divide. Use a pattern to help.

5. \( 9,000 \div 30 = \) _______ 6. \( 5,000 \div 50 = \) _______ 7. \( 1,800 \div 60 = \) _______

8. \( 7,000 \div 10 = \) _______ 9. \( 3,200 \div 80 = \) _______ 10. \( 6,300 \div 90 = \) _______

Problem Solving

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.

   ____________________________
   ____________________________
   ____________________________
**Model Division with 2-Digit Divisors**

**Essential Question** How can you use models to divide?

**CONNECT** You have used base-ten blocks to divide whole numbers by 1-digit divisors. You can follow the same steps to divide whole numbers by 2-digit divisors.

---

**Unlock the Problem Real World**

**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.

---

**Math Talk**

- Explain how you can check your answer.
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. $60 \div 12 = \underline{5}$

3. $135 \div 15 = \underline{9}$

On Your Own

Use base-ten blocks to divide.

4. $180 \div 10 = \underline{18}$

5. $150 \div 15 = \underline{10}$

6. $88 \div 11 = \underline{8}$

7. $96 \div 16 = \underline{6}$

8. $176 \div 11 = \underline{16}$

9. $156 \div 13 = \underline{12}$

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.
Find the sum or difference.

1. \( \$2.87 + \$8.09 \)  
2. \( \$7.65 - \$5.23 \)  
3. \( \$37.05 + \$14.95 \)  
4. \( \$30.00 - \$12.69 \)

Use base-ten blocks to divide.

5. \( 143 \div 11 \)  
6. \( 224 \div 16 \)  
7. \( 108 \div 18 \)

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

8. \( (8 \times 2) + 4 \)  
9. \( 16 - (3 \times 5) \)  
10. \( 24 \div (15 - 7) \)  
11. \( 15 \div (9 - 4) \times 4 \)

Divide. Use a pattern to help.

12. \( 6,000 \div 30 \)  
13. \( 2,000 \div 20 \)  
14. \( 3,200 \div 40 \)  
15. \( 8,100 \div 90 \)

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?
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.

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 + \_

$80,000 + \_ + 20 + 6$
1. Write the number 3,298,076 in word form and expanded form.

**Word Form:**

**Expanded Form:**

2. Read and write the number in two other forms.

- fifty million, three thousand, eighty-seven
- $60,000,000 + 400,000 + 200 + 30 + 9$

3. twenty million, eleven thousand, twelve

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

5. 45,687,909

6. 3,356,000

7. 70,000,044

8. 30,051,218

6. Write the value of the underlined digit.

- 3

7. 8

8. 0

9. 1

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.
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:** \(3 + \_\_\_\_\_\_ + \_\_\_\_\_\)
1. Write the decimal 4.06 in word form and expanded form.

Word Form: ________________________________

Expanded Form: ________________________________

2. Write the decimal in two other forms.

   2. five and two tenths
   ________________________________

3. Write the decimal in two other forms.

   3. $6 + 0.8 + 0.09$
   ________________________________

On Your Own

Read and write the decimal in two other forms.

4. seven and three hundredths:
   ________________________________

5. $2 + 0.3 + 0.01$
   ________________________________

Write the value of the underlined digit.

6. 4.56
   ______

7. 5.09
   ______

8. 7.4
   ______

9. 1.32
   ______

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.

   ________________________________
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 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.
Share and Show

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 Real World

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?

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

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
Share and Show

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>.</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>.</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.

\[
1,200 = \underline{\phantom{0}} \times 1 \\
1,200 = \underline{\phantom{0}} \times 10 \\
1,200 = \underline{\phantom{0}} \times 100
\]

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

**Another Way** Use place value.

Decompose 1,200.

\[
1,200 = 12 \text{ hundreds} = 12 \times \underline{\phantom{0}}
\]

So, \(1,200 = 12 \times 100\).

- Explain how you use mental math and a pattern to find factors of multiples of 10, 100, or 1,000.
Problem Solving

1. Complete the exercise below to decompose 2,800.
   
   2,800 = ________ × 1
   2,800 = ________ × 10
   2,800 = ________ × 100

2. Complete the exercise below to decompose 930.
   
   930 = ________ tens = ________ × ________

Decompose each number.

3. 80 = ________
4. 320 = ________
5. 8,000 = ________

On Your Own

Decompose each number.

6. 90 = ________
7. 40 = ________
8. 890 = ________

9. 300 = ________
10. 7,000 = ________
11. 3,700 = ________

Correct the error. Write the correct decomposition.

12. 560 = 56 × 100

13. 4,300 = 43 × 1,000

14. 6,000 = 60 × 10

Problem Solving

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 \(8 \times 2 = 16\).

\[
8, \quad 16, \quad 32, \quad 64
\]

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

**RULE:** ________________.

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

\[
\times 2 \quad \times 2 \quad \times 2
\]

\[
8, \quad 16, \quad 32, \quad 64, \quad \underline{\text{_____}}, \quad \underline{\text{____}_}
\]

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, ____ , ____

On Your Own

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

4. 1, 4, 16, 64, ____ , ____

5. 2, 6, 18, 54, ____ , ____

Determine the pattern and use it to fill in the blanks.

6. 1, 5, 25, ____ , 625

7. 3, 6, ____ , 24, ____

8. 2, ____ , 32, ____ , 512

Problem Solving

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>

______________________________

______________________________

______________________________
Name ________________________________

**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>

______________________________

______________________________

______________________________

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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?

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? 5

Write the sum. $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$

So, $\frac{1}{2} + \frac{2}{6} = \frac{5}{6}$.

---

- **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**

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

   \[
   \frac{1}{4} + \frac{2}{8} = \frac{3}{8}
   \]

Add. Use fraction strips to help.

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

4. $\frac{1}{2} + \frac{3}{8} = \frac{7}{8}$

5. $\frac{1}{2} + \frac{3}{10} = \frac{11}{10}$

**On Your Own**

Add. Use fraction strips to help.

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

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

8. $\frac{3}{8} + \frac{1}{4} = \frac{5}{8}$

9. $\frac{5}{12} + \frac{1}{3} = \frac{3}{4}$

10. $\frac{1}{3} + \frac{8}{12} = \frac{5}{6}$

11. $\frac{8}{10} + \frac{1}{5} = \frac{9}{10}$

**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.

\[
\begin{array}{cccc}
1 & 1 & 1 \\
\frac{1}{3} & \frac{1}{3} & \frac{1}{3} \\
\frac{1}{3} & \frac{1}{3} & \frac{1}{3} \\
\end{array}
\]

\[
\frac{1}{3}
\]

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

\[
\frac{5}{6} - \frac{1}{2} = \_
\]

Subtract. Use fraction strips to help.

3. \( \frac{1}{2} - \frac{3}{8} = \_ \) | 4. \( 1 - \frac{2}{5} = \_ \) | 5. \( \frac{2}{4} - \frac{2}{12} = \_ \)

On Your Own

Subtract. Use fraction strips to help.

6. \( \frac{4}{5} - \frac{2}{10} = \_ \) | 7. \( \frac{7}{8} - \frac{3}{4} = \_ \) | 8. \( \frac{5}{6} - \frac{3}{3} = \_ \)

9. \( \frac{7}{10} - \frac{2}{5} = \_ \) | 10. \( \frac{2}{6} - \frac{1}{3} = \_ \) | 11. \( \frac{6}{8} - \frac{1}{2} = \_ \)

Problem Solving

12. 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 \( \frac{2}{3} \): \( \frac{2}{3} \times 3 \).
- 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: \( \frac{2}{3} \times 3 \).
- 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 \( \frac{2}{3} \).

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 \( \frac{4}{3} \).
- The product of a whole number greater than 1 and \( \frac{2}{3} \) will be greater than the whole number factor.

Math Talk

What if a different fraction was multiplied by 2 and 3? Would your statements still be true? Explain.
Share and Show

1. Complete the statement with greater than or less than.
   \[ 2 \times \frac{3}{4} \text{ will be } \quad \underline{\text{less than}} \quad \frac{3}{4}. \]

Complete each statement with greater than or less than.

2. \[ 3 \times \frac{2}{5} \text{ will be } \quad \underline{\text{less than}} \quad 3. \]
3. \[ 3 \times \frac{1}{3} \text{ will be } \quad \underline{\text{greater than}} \quad \frac{1}{3}. \]

On Your Own

Complete each statement with greater than or less than.

4. \[ 3 \times \frac{3}{8} \text{ will be } \quad \underline{\text{less than}} \quad \frac{3}{8}. \]
5. \[ \frac{5}{6} \times 5 \text{ will be } \quad \underline{\text{greater than}} \quad \frac{5}{6}. \]
6. \[ \frac{3}{10} \times 6 \text{ will be } \quad \underline{\text{greater than}} \quad \frac{3}{10}. \]
7. \[ 4 \times \frac{5}{9} \text{ will be } \quad \underline{\text{less than}} \quad 4. \]

Problem Solving

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 \(2 \div \frac{1}{4}\).

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. \(1 \div \frac{1}{8}\)  
   _____

On Your Own

Use repeated subtraction to divide.

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. \(3 \div \frac{1}{4}\)  
    _____

Problem Solving

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.

   ________________________________________

   ________________________________________
Fractions and Division

Essential Question: How can you write division problems as fractions?

Division and fractions both show sharing equal numbers of things or making equal-size groups. You can write division problems as fractions.

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 $\frac{4}{3}$.

Math Talk

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. $32 \div 8$

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

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

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.
Complete each statement with greater than or less than.

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

______________________________

______________________________

______________________________
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.

---

**Unlock the Problem**

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.

---

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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.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Number of Pages</th>
<th>1</th>
<th></th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Photos</td>
<td>4</td>
<td></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 × h = _____ × _____ = _____ 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.
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.**

Table Top

1 square = 5 square inches
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.

$4 \times (16 \times 6) = 4 \times (\_ \times 16)$ Commutative Property

$= (4 \times \_) \times 16$ Associative Property

$= \_ \times 16$

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

So, Sam ships __________ car model kits.

**STEP 2**

Multiply.

$\begin{array}{c}
16 \\
\times 24 \\
\hline
4 \times 16 \\
20 \times 16
\end{array}$

$\leftarrow$ Add.

Try This!

$(18 \times 8) \times 3 = 18 \times (\_ \times \_)$ Associative Property

$= 18 \times \_\_\_\_$

$= \_\_\_\_$
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.

   $13 \times 42$

2. Find each product.

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

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

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

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 = \_

4. **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 \( l \times w \).

### Unlock the Problem

**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.

\[
A = b \times h
\]

- **base** = _____ inches
- **height** = _____ inches

\[
A = _____ \times _____
\]

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

So, the area of the base of the diorama is _____ square inches.

**Real World**

- **What shape is the base of the diorama?**

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

**Math Talk**

**Mathematical Practices**

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: \( A = s \times s \)
Share and Show

1. Find the area of the base of the rectangular prism.

   The base shape is a _______________.
   
   length = _____ yards, width = _____ yards
   
   \[ A = _____ \times _____ = _____ \text{ square yards} \]
   
   So, the area of the base is _____ square yards.

Find the area of the base of the rectangular prism.

2. 3 in. 3 in.
    2 in. 2 in.

3. 4 yd 4 yd
    3 yd 3 yd

4. 5 m 5 m
    4 m 4 m

On Your Own

Find the area of the base of the rectangular prism.

5. 11 cm 11 cm
    25 cm 25 cm

6. 32 ft 32 ft
    13 ft 13 ft

7. 30 m 30 m
    22 m 22 m

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. [Diagram of square with shaded area and 1 square = 4 square yards]
5. [Diagram of square with shaded area and 1 square = 16 square feet]
6. [Diagram of rectangle with shaded area and 1 square = 25 square meters]

Find the area of the base of the rectangular prism.

7. [Diagram of rectangular prism with dimensions 2 in., 2 in., 6 in.]
8. [Diagram of rectangular prism with dimensions 18 ft, 3 ft, 9 ft]
9. [Diagram of rectangular prism with dimensions 24 cm, 6 cm, 6 cm]

**Problem Solving**

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?

________________________
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
Add Dollars and Cents

Find the sum.

1. $58.36
   + $ 5.87
   $64.23

2. $7.96
   + $ 3.08

3. $98.45
   + $ 4.76

4. $14.66
   + $30.76

5. $26.71
   + $ 5.09

6. $30.25
   + $27.42

7. $54.01
   + $85.23

8. $42.49
   + $30.73

9. $ 7.76
   + $54.02

10. $21.06
    + $63.48

11. $34.59
    + $ 7.45

12. $53.97
    + $60.00

13. $71.25
    + $ 5.90

14. $40.39
    + $17.25

15. $14.99
    + $ 5.23

16. $22.85
    + $40.25

17. $ 5.23
    + $30.55

18. $43.32
    + $86.85

19. $31.26
    + $88.90

20. $83.77
    + $60.35

21. The bill for tonight’s dinner is $56.85. Mr. Asham adds a $10.50 tip. How much does Mr. Asham pay in all?

22. Maria buys a video game for $25.99 and batteries for $7.30. What is the total cost for these two items?
Subtract Dollars and Cents

Find the difference.

1. $58.36
   \[-26.87\]
   \[\boxed{31.49}\]

2. $3.05
   \[-1.18\]
   \[\boxed{1.87}\]

3. $9.43
   \[-7.08\]
   \[\boxed{2.35}\]

4. $6.25
   \[-4.88\]
   \[\boxed{1.37}\]

5. $15.20
   \[-9.47\]
   \[\boxed{5.73}\]

6. $64.66
   \[-3.85\]
   \[\boxed{60.81}\]

7. $80.00
   \[-9.99\]
   \[\boxed{70.01}\]

8. $52.03
   \[-7.46\]
   \[\boxed{44.57}\]

9. $73.18
   \[-18.42\]
   \[\boxed{54.76}\]

10. $21.64
    \[-10.95\]
    \[\boxed{10.69}\]

11. $48.57
    \[-20.69\]
    \[\boxed{27.88}\]

12. $60.35
    \[-39.54\]
    \[\boxed{20.81}\]

13. $91.32
    \[-8.79\]
    \[\boxed{82.53}\]

14. $23.06
    \[-6.97\]
    \[\boxed{16.09}\]

15. $58.30
    \[-9.41\]
    \[\boxed{48.89}\]

16. $41.45
    \[-7.59\]
    \[\boxed{33.86}\]

17. $34.20
    \[-18.15\]
    \[\boxed{16.05}\]

18. $56.20
    \[-20.50\]
    \[\boxed{35.70}\]

19. $43.17
    \[-30.09\]
    \[\boxed{13.08}\]

20. $95.44
    \[-78.56\]
    \[\boxed{16.88}\]


22. Hal earned $56.50 dog sitting last month. Liz earned $87.00. How much more did Liz earn than Hal?
Problem Solving

Order of Operations

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

1. \(3 + (18 \times 2) \div 3\)  
   \(3 + 36 \div 3\)  
   \(3 + 12\)  
   \(15\)

2. \((20 - 8) \times 2\)  

3. \((48 \div 6) + 5\)

4. \((9 \times 4) + 6\)

5. \((10 + 5) \times 9\)

6. \((40 \div 10) + 11\)

7. \(5 + (21 \div 3) \times 5\)

8. \(7 \times 4 + (15 \div 3)\)

9. \(6 + (24 \div 8) - 3\)

10. \(43 - 28 + (12 \div 2)\)

11. \((13 \times 2) - 2 - 5\)

12. \(15 + 6 \times (8 \div 4)\)

Problem Solving

13. Each carton has 12 eggs. There are 2 full cartons in the refrigerator. Margot uses 3 eggs to make a quiche. How many eggs are left?

14. There are 6 rows in the parking lot. Each row has 12 parking spaces. At 9 o’clock the lot is full. An hour later, there are 15 empty spaces. How many cars are in the lot an hour later?
Divide by Multiples of Ten

Divide. Use a pattern to help.

1. \(1,500 \div 30 = \underline{50}\)
2. \(2,000 \div 20 = \underline{\phantom{00}}\)
3. \(4,000 \div 80 = \underline{\phantom{00}}\)
   
   \(15 \div 3 = 5\), so \(150 \div 30 = 5\).
   
   \(1,500 \div 30 = 50\)

4. \(6,000 \div 30 = \underline{\phantom{00}}\)
5. \(9,000 \div 30 = \underline{\phantom{00}}\)
6. \(8,000 \div 40 = \underline{\phantom{00}}\)

7. \(1,000 \div 20 = \underline{\phantom{00}}\)
8. \(3,500 \div 50 = \underline{\phantom{00}}\)
9. \(8,100 \div 90 = \underline{\phantom{00}}\)

10. \(6,400 \div 80 = \underline{\phantom{00}}\)
11. \(2,400 \div 60 = \underline{\phantom{00}}\)
12. \(6,000 \div 60 = \underline{\phantom{00}}\)

13. \(2,100 \div 70 = \underline{\phantom{00}}\)
14. \(5,400 \div 90 = \underline{\phantom{00}}\)
15. \(2,700 \div 30 = \underline{\phantom{00}}\)

Problem Solving

16. A food bank has 3,600 boxes of food. The boxes will be loaded equally onto 60 trucks. How many boxes of food will be on each truck?

17. A stadium has a seating capacity of 8,000. Suppose it is divided into 20 equal sections. How many seats are in each section? Explain.
## Model Division with 2-Digit Divisors

Use base-ten blocks to divide.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. $154 \div 11$</td>
<td>2. $48 \div 16$</td>
</tr>
<tr>
<td>5. $120 \div 15$</td>
<td>6. $140 \div 10$</td>
</tr>
<tr>
<td>9. $250 \div 10$</td>
<td>10. $154 \div 11$</td>
</tr>
</tbody>
</table>

### Problem Solving

13. A theater has 126 seats. The theater has 14 rows with the same number of seats in each row. How many seats are in each row?

14. Leila has $360 in twenty-dollar bills. How many twenty-dollar bills does she have?
Place Value Through Millions

Read and write the number in two other forms.

1. 4,520,696
   - four million, five hundred twenty thousand, six hundred ninety-six;
   - $4,000,000 + 500,000 + 20,000 + 600 + 90 + 6$

2. thirty-one million, six thousand, one hundred fifty
   - $31,000,000 + 600,000 + 10,000 + 500 + 10 + 5$

3. 80,000,000 + 40,000 + 900 + 60
   - $80,000,000 + 40,000 + 90 + 6$

Write the value of the underlined digit.

4. 4,520,696
   - 2

5. 79,241,043
   - 7

6. 2,138,824
   - 8

7. 63,446,364
   - 4

8. During one decade, the total number of visitors to an annual arts festival was 84,303,912. Write 84,303,912 in standard form, word form, and expanded form.
   - 84,303,912
   - eighty-four million, three hundred three thousand, nine hundred twelve
   - $80,000,000 + 4,000,000 + 300,000 + 30,000 + 900 + 10 + 2$

9. In 2007, the population of the United States was estimated to be 31,139,947. Which place value does the underlined digit represent in this number?
   - 3
   - thirty million
   - $30,000,000 + 1,000,000 + 100,000 + 30,000 + 900 + 40 + 7$
Lesson 7

Decimals and Place Value

Read and write the decimal in two other forms.

1. 7.32
   seven and thirty-two hundredths; \(7 + 0.3 + 0.02\)

2. two and six tenths

3. 20 + 5 + 0.8 + 0.01

4. 86.04

Write the value of the underlined digit.

5. 6.24
   0.04

6. 3.2

7. 9.07

8. 0.48

9. 1.65

10. 0.9

11. 5.13

12. 10.82

Problem Solving

Use the table below for 13 and 14.

Three runners finished a foot race with the following times.

<table>
<thead>
<tr>
<th>Runner</th>
<th>Time (in seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erika</td>
<td>15.46</td>
</tr>
<tr>
<td>Andre</td>
<td>14.89</td>
</tr>
<tr>
<td>Conner</td>
<td>15.08</td>
</tr>
</tbody>
</table>

13. Which runner finished the race with a time that has the digit 8 in the hundredths place?

14. What is Erika’s time written in expanded form?
Round Decimals

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

1. $3.18
2. 4.7
3. $7.02
4. 8.55

5. $1.89
6. 0.2
7. $0.75
8. 9.09

9. $9.51
10. 1.01
11. $8.49
12. 6.35

13. $0.85
14. 5.9
15. $1.05
16. 4.5

17. $4.15
18. 3.65
19. $1.99
20. 5.52

21. Camden spends $18.25 at the driving range. How much money did Camden spend, rounded to the nearest dollar?

22. Jolie bought 3.75 pounds of turkey at the deli. About how many pounds of turkey did Jolie buy?
# Place Value to Compare Decimals

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

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>$2.12$</td>
<td>$2.2$</td>
</tr>
<tr>
<td>2.</td>
<td>$2.6$</td>
<td>$2.64$</td>
</tr>
<tr>
<td>3.</td>
<td>$2.08$</td>
<td>$2.8$</td>
</tr>
<tr>
<td>4.</td>
<td>$2.73$</td>
<td>$2.77$</td>
</tr>
<tr>
<td>5.</td>
<td>$2.4$</td>
<td>$2.40$</td>
</tr>
<tr>
<td>6.</td>
<td>$2.89$</td>
<td>$2.876$</td>
</tr>
<tr>
<td>7.</td>
<td>$2.98$</td>
<td>$2.09$</td>
</tr>
<tr>
<td>8.</td>
<td>$2.57$</td>
<td>$2.75$</td>
</tr>
<tr>
<td>9.</td>
<td>$0.38$</td>
<td>$0.34$</td>
</tr>
<tr>
<td>10.</td>
<td>$46.2$</td>
<td>$46.20$</td>
</tr>
<tr>
<td>11.</td>
<td>$0.8$</td>
<td>$0.88$</td>
</tr>
<tr>
<td>12.</td>
<td>$25.09$</td>
<td>$25.48$</td>
</tr>
</tbody>
</table>

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

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>13.</td>
<td>$0.41$, $0.49$, $0.45$</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>$8.95$, $8.98$, $8.9$</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>$2.7$, $2.77$, $2.07$</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>$1.23$, $1.27$, $1.25$</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>$9.9$, $9.99$, $9.94$</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>$3.4$, $3.04$, $3.44$</td>
<td></td>
</tr>
</tbody>
</table>

## Problem Solving

19. Veronica drank $0.5$ liter of water. Hector drank $0.3$ liter of water. Who drank less water?

20. Abby spent $6.36$ on her lunch and Colby spent $6.63$ on his lunch. Who spent less money on lunch—Abby or Colby?
Decompose Multiples of 10, 100, 1,000

Decompose each number.

1. 60 = ____________
2. 30 = ____________
3. 570 = ____________
4. 900 = ____________
5. 4,000 = ____________
6. 2,800 = ____________
7. 730 = ____________
8. 1,700 = ____________
9. 2,000 = ____________

Correct the error. Write the correct decomposition.

10. 980 = 98 \times 100

11. 1,700 = 17 \times 1,000

12. 8,000 = 80 \times 100

13. 700 = 70 \times 100

14. 6,400 = 64 \times 1,000

15. 5,000 = 50 \times 1,000

16. 920 = 92 \times 100

17. 7,700 = 77 \times 1,000

18. 280 = 28 \times 100

19. There are 240 students in the middle-school band. The band director is dividing the students into groups of 10. Into how many groups will the band director divide the students?

__________________________________________________________
Number Patterns

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

1. 4, 12, 36, 108, 324, 972
   Multiply by 3.
2. 14, 28, 56, 112, ____, ____

3. 2, 8, 32, 128, ____, ____
4. 1, 5, 25, 125, ____, ____

Determine the pattern and use it to fill in the blanks.

5. 1, 6, 36, ____, 1,296
6. 2, 6, ____, 54, ____
7. 3, 12, ____, ____ , 768

8. ____, ____ , 36, 108, 324
9. ____, 2, 4, 8, ____
10. 5, 20, ____, 320, ____

11. Pippen works at an aquarium. Each month, she counts the number of fish in one of the aquariums. She records the total number of fish in the table below. If the pattern continues, how many fish will be in the aquarium in Months 6 and 7?

<table>
<thead>
<tr>
<th>Month</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Fish</td>
<td>4</td>
<td>8</td>
<td>16</td>
<td>32</td>
<td>64</td>
</tr>
</tbody>
</table>
Add. Use fraction strips to help.

1. \( \frac{1}{2} + \frac{1}{8} = \frac{5}{8} \)

2. \( \frac{1}{3} + \frac{2}{9} = \) __________

3. \( \frac{2}{10} + \frac{1}{5} = \) __________

4. \( \frac{2}{3} + \frac{1}{6} = \) __________

5. \( \frac{2}{8} + \frac{1}{4} = \) __________

6. \( \frac{4}{12} + \frac{2}{3} = \) __________

7. \( \frac{4}{10} + \frac{1}{2} = \) __________

8. \( \frac{1}{2} + \frac{3}{6} = \) __________

9. The Lin family bought a dozen bagels. They ate \( \frac{1}{4} \) of the bagels today and \( \frac{5}{12} \) of the bagels yesterday. What fraction of the bagels did they eat in all? Explain how you found your answer.

10. The Smith family ate \( \frac{3}{5} \) of a pizza for dinner and \( \frac{2}{10} \) of the pizza for lunch the next day. How much of the pizza did they eat in all? Explain how you found your answer.
Subtract Related Fractions

Subtract. Use fraction strips to help.

1. $\frac{3}{8} - \frac{1}{8} = \frac{1}{4}$

2. $\frac{5}{6} - \frac{1}{3} = \frac{1}{2}$

3. $1 - \frac{3}{5} = \frac{2}{5}$

4. $\frac{3}{4} - \frac{3}{12} = \frac{1}{2}$

5. $\frac{3}{5} - \frac{2}{10} = \frac{1}{5}$

6. $\frac{7}{8} - \frac{2}{4} = \frac{3}{8}$

7. $\frac{4}{6} - \frac{2}{3} = \frac{1}{3}$

8. $1 - \frac{2}{3} = \frac{1}{3}$

9. Fabia buys $\frac{5}{8}$ pound of red grapes and $\frac{1}{4}$ pound of green grapes. How many more pounds of red grapes does she buy? Explain how you found your answer.

10. Geraldo has $\frac{9}{12}$ mile left to hike to reach the end of the trail. He hikes $\frac{2}{3}$ mile. What fraction of a mile does he have left to hike? Explain how you found your answer.
Complete each statement with **greater than** or **less than**.

1. \( \frac{2}{4} \times 3 \) will be **less than** 3.

2. \( \frac{3}{8} \times 2 \) will be **less than** \( \frac{3}{8} \).

3. \( 4 \times \frac{5}{6} \) will be **less than** \( \frac{5}{6} \).

4. \( 2 \times \frac{1}{4} \) will be **less than** 2.

5. \( 3 \times \frac{4}{9} \) will be **less than** \( \frac{4}{9} \).

6. \( \frac{7}{10} \times 2 \) will be **less than** \( \frac{7}{10} \).

7. \( 3 \times \frac{3}{5} \) will be **less than** 3.

8. \( 5 \times \frac{2}{3} \) will be **less than** \( \frac{2}{3} \).

9. Jen is making 3 loaves of banana bread. She needs \( \frac{3}{4} \) cup sugar for each loaf. Will she need more or less than 3 cups of sugar to make all 3 loaves? Explain.

   - 
   - 
   - 
   - 
   - 
   - 

10. Tafua exercises for \( \frac{5}{6} \) hour every day. After 2 days, will Tafua have exercised for less than or more than \( \frac{5}{6} \) hour? Explain.

   - 
   - 
   - 
   - 
   - 
   - 

   - 
   - 
   - 
   - 
   - 
   - 
Use repeated subtraction to divide.

1. \(1 ÷ \frac{1}{4}\)

2. \(2 ÷ \frac{1}{8}\)

3. \(4 ÷ \frac{1}{2}\)

4. \(3 ÷ \frac{1}{3}\)

5. \(3 ÷ \frac{1}{5}\)

6. \(2 ÷ \frac{1}{6}\)

7. \(6 ÷ \frac{1}{2}\)

8. \(4 ÷ \frac{1}{4}\)

9. Harold has 4 cups of trail mix. He wants to give \(\frac{1}{3}\) cup trail mix to each camper in his group. There are 8 campers in his group. Does he have enough trail mix for all the campers? Explain.

10. Marita is cutting rolls of ribbon that are 3 feet long into \(\frac{1}{2}\)-foot pieces. She needs fifteen \(\frac{1}{2}\)-foot pieces for a project. She has 3 rolls of ribbon. Does she have enough to cut 15 pieces? Explain.
Fractions and Division

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

1. \( \frac{8}{2} \)  
2. \( \frac{10}{2} \)  
3. \( \frac{6}{5} \)

4. \( \frac{9}{6} \)  
5. \( \frac{2}{5} \)  
6. \( \frac{2}{8} \)

7. \( \frac{24}{6} \)  
8. \( \frac{9}{1} \)  
9. \( \frac{15}{2} \)

10. There are 13 bagels in a baker’s dozen. Hillary, Mark, and Tam share the bagels equally. Will each friend get more than or fewer than 4 whole bagels? Explain.
Locate Points on a Grid

Use the grid for 1–12.

Write the ordered pair for each point.
1. A
   
   (5, 6)
2. B
3. C
4. D
5. E
6. F

Write the point for each ordered pair.
7. (9, 9)
8. (0, 4)
9. (6, 10)
10. (7, 5)
11. (3, 8)
12. (10, 6)

Problem Solving

There are 3 sides in a triangle. Complete the table. Write ordered pairs from the table. Then graph the ordered pairs on the grid.

<table>
<thead>
<tr>
<th>Number of Triangles</th>
<th>1</th>
<th>2</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Sides</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Area and Tiling

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

1. Area of the half squares:
   \(6\) half squares \(\times\) \(2\) square inches = \(12\) square inches

   Area of the whole squares:
   \(18\) whole squares \(\times\) \(4\) square inches = \(72\) square inches

   Total area: \(12\) + \(72\) = \(84\) square inches

2. 

3. 

4. 

5. 

6. 

7. 

8. A deck is in the shape of a rectangle. What is the area of the deck if each square shown in the diagram is 9 square feet? Explain how you found the area.
Find each product.

1. \( 6 \times (4 \times 17) = \) __________

   \[
   6 \times (4 \times 17) = \left( \frac{6}{17} \times \frac{4}{17} \right) \times 17
   \]
   
   \[
   = \frac{24}{17} \times 17
   \]
   
   \[
   = 408
   \]

2. \( (28 \times 8) \times 3 = \) __________

3. \( (13 \times 9) \times 4 = \) __________

4. \( (6 \times 26) \times 3 = \) __________

5. \( 6 \times (15 \times 7) = \) __________

6. \( 2 \times (8 \times 18) = \) __________

7. \( (4 \times 21) \times 4 = \) __________

8. \( 8 \times (4 \times 33) = \) __________

9. \( 3 \times (44 \times 6) = \) __________

10. \( (36 \times 9) \times 5 = \) __________

11. There are 9 rows of 28 chairs set up for a play. A ticket to the play costs $4. How much money will be made on ticket sales if all the seats are sold for the play?

12. Three families are sharing the cost of renting a canoe for 7 days. The cost for each family is $14 per day. What is the total cost of renting the canoe for 7 days from the rental shop?
**Find the area of the base of the rectangular prism.**

1. \( A = l \times w \)
   \[
   A = \frac{6}{24} \times \frac{4}{24} \text{ square yards}
   \]

2. ____________
3. _________
4. _________
5. _________
6. _________
7. _________

**Problem Solving**

8. Mr. Patell is packing square tiles in the box shown without gaps or overlaps. Each tile lies flat and measures 1 inch on a side. Mr. Patell says he can fit 64 tiles in the bottom layer. Is he correct? Explain.

   ____________
   ____________