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5. 444,444 445,342 430,990 445,209

hundred thousands	ten thousands	thousands	hundreds	tens	ones

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7. 1,034 11,040 1,029

ten thousands	thousands	hundreds	tens	ones

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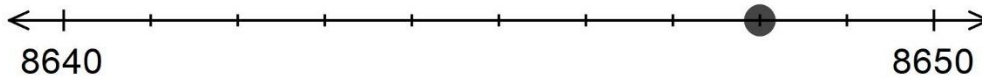
Example 3

Round 8,648 to the nearest ten.

Solution

thousands	hundreds	tens	ones
8,	6	<u>4</u>	8

1. Underline the tens column.
2. Draw an arrow to the ones column.
3. 8 is greater than 5, so we will round the tens digit up to 5 and replace the digits to the right with zeros.
4. 8,648 rounded to the nearest 10 is 8,650. 8,648 is closer to 8,650 than 8,640.



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Example 2

Eden rode her bicycle for three days. The first day, she rode for 57 blocks. The second day, she rode for 48 blocks. The third day, she rode 22 blocks. How many blocks did she ride in total?

Solution

The question is asking how many blocks she rode in total, so it wants us to find the sum.

Eden rode 57 blocks on day one.
 She rode 48 blocks on day two.
 She rode 22 blocks on day three.

$$\begin{array}{r}
 1 \ 1 \\
 5 \ 7 \\
 4 \ 8 \\
 + \ 2 \ 2 \\
 \hline
 1 \ 2 \ 7
 \end{array}$$

Eden rode a total of 127 blocks in three days.

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We can add to check our answer.

$$\begin{array}{r}
 \\
 \\
 + \\
 \hline
 3
 \end{array}$$

Our answer is correct.

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b) The question is asking for how much is left after he pays for the items. We will be subtracting.

Amir paid with a \$20-bill.

The items cost \$5.43.

Amir received \$14.57 in change.

		9		9	
	1	40		40	10
	2	0	.	0	0
-		5	.	4	3
	1	4	.	5	7

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Example 3

Find the product of 4×61 using the standard algorithm.

Solution

	2		
		6	1
×			4
	2	4	4

$$4 \times 1 = 4$$

Write the 4 under the 4.

$$4 \times 6 = 24$$

Write the 4 in the tens column and regroup the 2.

There are no hundreds, so bring down the 2.

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Example 2

Find the product of 617×7 using a table.

Solution

	600	10	3
7	4,200	700	21

We add the partial products to get the final product.

$$\begin{array}{r}
 4,200 \\
 700 \\
 + 21 \\
 \hline
 4,921
 \end{array}$$

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If we want to find the product of 12×31 , we can first write each number in expanded form.

$$\begin{aligned}
 12 &= 10 + 2 \\
 31 &= 30 + 1
 \end{aligned}$$

Next, we multiply each part of 12 by each part of 31.

$$\begin{aligned}
 10 \times 30 &= 300 \\
 10 \times 1 &= 10 \\
 2 \times 30 &= 60 \\
 2 \times 1 &= 2
 \end{aligned}$$

Add up the partial products.

$$\begin{array}{r}
 300 \\
 10 \\
 60 \\
 + 2 \\
 \hline
 372
 \end{array}$$

$$12 \times 31 = 372$$

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Example 1

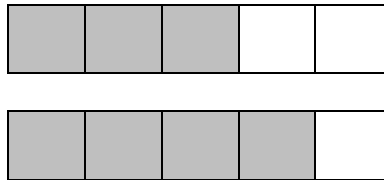
Find the sum of $\frac{3}{5}$ and $\frac{4}{5}$. Check to see if your answer makes sense.

Solution

To add two fractions, we add the numerators and leave the denominator the same.

$$\frac{3}{5} + \frac{4}{5} = \frac{7}{5}$$

Check the answer.



$\frac{3}{5}$ is slightly larger than $\frac{1}{2}$ and $\frac{4}{5}$ is larger than $\frac{3}{4}$. When we add them, the answer will be larger than 1 ($\frac{1}{2} + \frac{3}{4} = 1\frac{1}{4}$).

$\frac{7}{5} > 1$ (the numerator is larger than the denominator). The answer makes sense.

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Example 2

Jayda and Isaac were peeling apples to bake pies. They both started with the same number of apples. Jayda peeled $\frac{5}{6}$ of a bowl of apples and Isaac peeled $\frac{2}{3}$ of a bowl. How many bowls of apples did they peel in total?

Solution

We need to find the sum of $\frac{5}{6} + \frac{2}{3}$.

$$\frac{5}{6} + \frac{2}{3}$$

The least common multiple of 6 and 3 is 6.

$$= \frac{5}{6} + \frac{2 \times 2}{3 \times 2} = \frac{5}{6} + \frac{4}{6}$$

Write both fractions with a denominator of 6.

$$\frac{5}{6} + \frac{4}{6} = \frac{5 + 4}{6}$$

Add the numerators.

$$= \frac{9}{6} = \frac{9 \div 3}{6 \div 3} = \frac{3}{2}$$

Simplify the fraction. (The greatest common factor of the numerator and denominator is 3, so we divide both by 3.)

They peeled $\frac{3}{2}$ (or $1\frac{1}{2}$) bowls of apples.

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Example 1

Solve this equation. $x + 9 = 20$

Solution

When solving an equation, think about the missing value called a *variable* and think of “opposite operations” as shown.

$$\begin{aligned}x + 9 &= 20 \\x + 9 - 9 &= 20 - 9 \\x &= 11\end{aligned}$$

The “opposite operation” of plus 9 is minus 9.
Subtract 9 from both sides of the equal sign.

Since $11 + 9 = 20$, the value of x is 11.

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Example 2

Solve each equation.

a) $x - 7 = 12$

Solution

$$\begin{aligned}\text{a) } x - 7 &= 12 \\x - 7 + 7 &= 12 + 7 \\x &= 19\end{aligned}$$

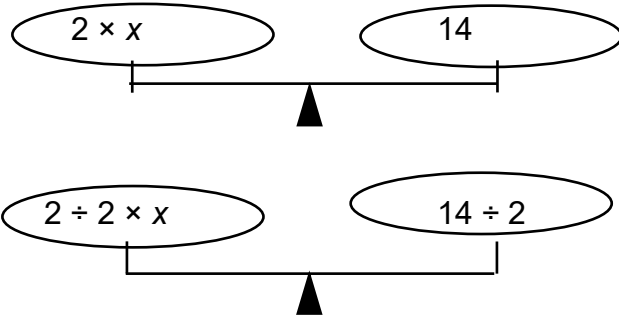
The “opposite operation” of subtract 7 is add 7.
Add 7 from both sides of the equal sign.

Since $19 - 7 = 12$, x is 19.

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In the diagram, the two x parts are equal and must total 14.

$$\begin{aligned} 2 \times x &= 14 \\ 2 \div 2 \times x &= 14 \div 2 \\ x &= 7 \end{aligned}$$



When $2x = 14$, $x = 7$.

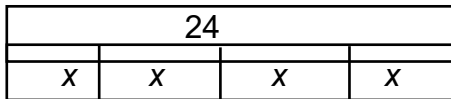
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Example

Show the equation on a tape diagram. Then solve the equation.

$$4x = 24$$

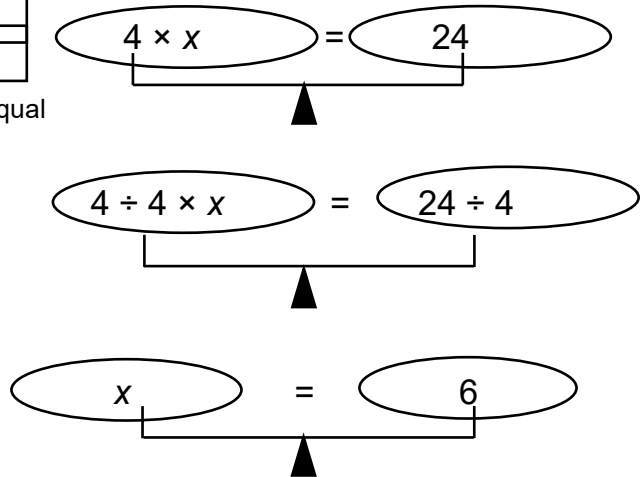
Solution



From the diagram, the 4 x parts must equal 24.

$$\begin{aligned} 4 \times x &= 24 \\ 4 \div 4 \times x &= 24 \div 4 \\ x &= 6 \end{aligned}$$

When $4 \times x = 24$, $x = 6$.



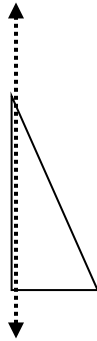
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3. Solve each of the following equations.

b) $4 \times n = 16$

c) $5 \times p = 20$

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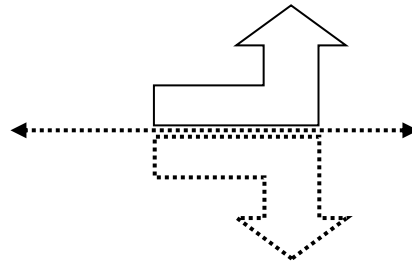
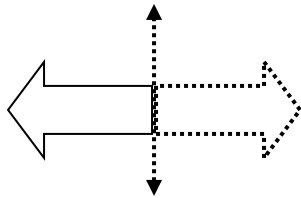
Folded across the vertical line of symmetry. Both sides match.

Since there are no other ways to fold the triangle so both sides match, there is a line of symmetry.

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Create a Shape with a Line of Symmetry

If a figure is flipped over the line of symmetry, it becomes its mirror image. The shapes below are “flipped” over a line of symmetry to create a new shape that is the same as the other. The dotted line is the *line of symmetry*.



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Relationship	Which Unit is Larger
<ul style="list-style-type: none"> 1 millimeter = 10 centimeter 	<ul style="list-style-type: none"> 1 centimeter is longer than 1 millimeter
<ul style="list-style-type: none"> 1 meter = 100 centimeters 	<ul style="list-style-type: none"> 1 meter is longer than 1 centimeter
<ul style="list-style-type: none"> 1 kilometer = 1,000 meters 	<ul style="list-style-type: none"> 1 kilometer is longer than 1 meter

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2. 1 meter = 100 cm. Circle the correct conversion for each.

a) 800 centimeters 8 meters 80,000 meters

b) 400 meters 0.4 centimeters 40,000 centimeters

c) 50 centimeters 0.5 meters 5,000 centimeters

6. Drew walked 3 km. Circle how many meters Drew has walked. To help, remember that 1 kilometer = 1,000 meters.

1,000 meters 2,000 meters 3,000 meters

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9.3 Converting Weight and Mass

Weight and mass are often used to represent the same thing. **Weight** is a measure in US Customary units. **Mass** is a measure in metric units. There are relationships among weights in US Customary units and among masses in the metric system. These relationships are shown in the tables.

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Example 1

Convert 4 hours into minutes.

Solution

From the above, 1 hour = 60 minutes.
When converting from a bigger unit to a smaller unit, multiply.

$$4 \times 60 = 240 \text{ minutes}$$

There are 240 minutes in 4 hours.

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1 hour = 60 minutes.

When converting from a smaller unit to a larger unit, divide.

Mario walked $180 \div 60$ or 3 hours.

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Example 1

Look at the data in the t-chart.

- How many students saw 4 movies?
- How many movies did the most number of students watch?

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Exercises 10.4

- For each data set, three numbers are given.
 - Put an M under the number that shows the mean.
 - Put an E under the number that shows the median.
 - Put an O under the number that shows the mode.

15, 18, 4, 10, 6, 8, 6, 8, 9, 6 6 8 9