

TABLE 1. Common addition and subtraction situations.<sup>6</sup>

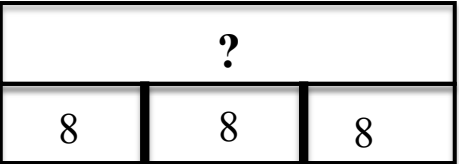
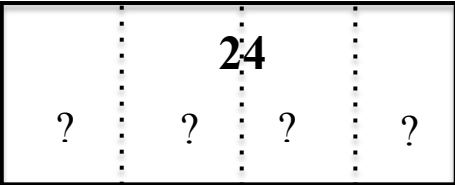
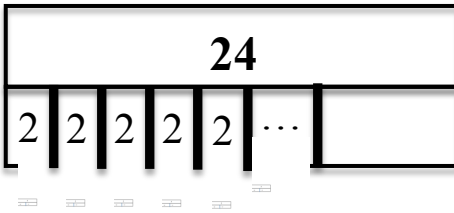
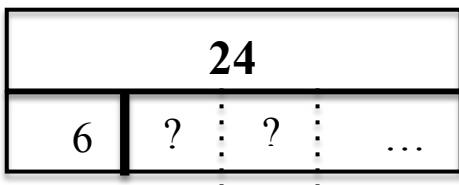
	Result Unknown	Change Unknown	Start Unknown
Add to	Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now? $2 + 3 = ?$	Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two? $2 + ? = 5$	Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before? $? + 3 = 5$
Take from	Five apples were on the table. I ate two apples. How many apples are on the table now? $5 - 2 = ?$	Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat? $5 - ? = 3$	Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before? $? - 2 = 3$
Put Together/ Take Apart <sup>2</sup>	Total Unknown	Addend Unknown	Both Addends Unknown <sup>1</sup>
	Three red apples and two green apples are on the table. How many apples are on the table? $3 + 2 = ?$	Five apples are on the table. Three are red and the rest are green. How many apples are green? $3 + ? = 5$ , $5 - 3 = ?$	Grandma has five flowers. How many can she put in her red vase and how many in her blue vase? $5 = 0 + 5$ , $5 = 5 + 0$ $5 = 1 + 4$ , $5 = 4 + 1$ $5 = 2 + 3$ , $5 = 3 + 2$
Compare <sup>3</sup>	Difference Unknown	Bigger Unknown	Smaller Unknown
	(“How many more?” version): Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy?  (“How many fewer?” version): Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie? $2 + ? = 5$ , $5 - 2 = ?$	(Version with “more”): Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have?  (Version with “fewer”): Lucy has 3 fewer apples than Julie. Lucy has two apples. How many apples does Julie have? $2 + 3 = ?$ , $3 + 2 = ?$	(Version with “more”): Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have?  (Version with “fewer”): Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have? $5 - 3 = ?$ , $? + 3 = 5$

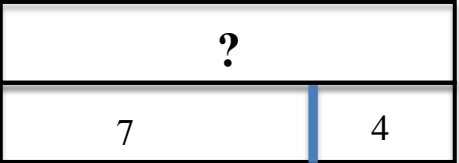
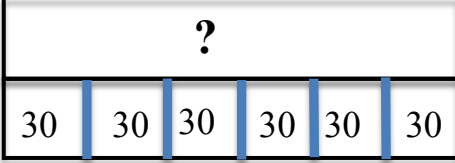
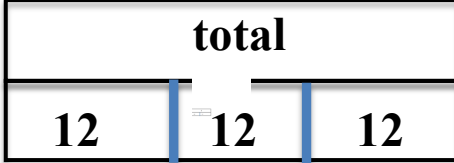
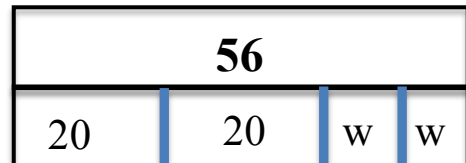
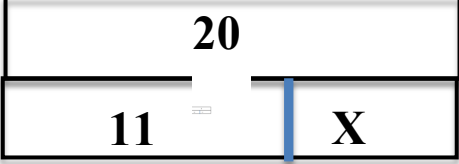
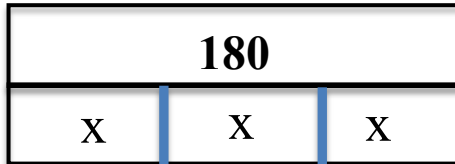
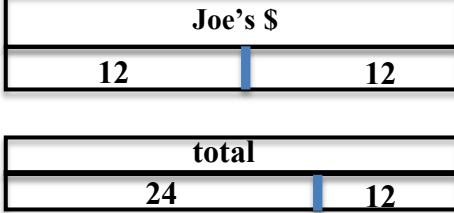
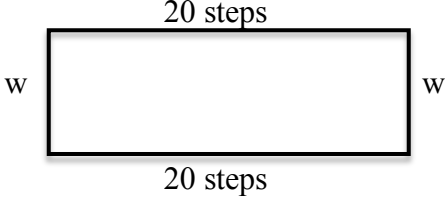
Table 1: Common Core State Standards for Math Glossary P. 88

TABLE 2. Common multiplication and division situations.<sup>7</sup>

	Unknown Product	Group Size Unknown ("How many in each group?" Division)	Number of Groups Unknown ("How many groups?" Division)
	$3 \times 6 = ?$	$3 \times ? = 18$ , and $18 \div 3 = ?$	$? \times 6 = 18$ , and $18 \div 6 = ?$
Equal Groups	<p>There are 3 bags with 6 plums in each bag. How many plums are there in all?</p> <p><i>Measurement example.</i> You need 3 lengths of string, each 6 inches long. How much string will you need altogether?</p>	<p>If 18 plums are shared equally into 3 bags, then how many plums will be in each bag?</p> <p><i>Measurement example.</i> You have 18 inches of string, which you will cut into 3 equal pieces. How long will each piece of string be?</p>	<p>If 18 plums are to be packed 6 to a bag, then how many bags are needed?</p> <p><i>Measurement example.</i> You have 18 inches of string, which you will cut into pieces that are 6 inches long. How many pieces of string will you have?</p>
Arrays, <sup>4</sup> Area <sup>5</sup>	<p>There are 3 rows of apples with 6 apples in each row. How many apples are there?</p> <p><i>Area example.</i> What is the area of a 3 cm by 6 cm rectangle?</p>	<p>If 18 apples are arranged into 3 equal rows, how many apples will be in each row?</p> <p><i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 3 cm long, how long is a side next to it?</p>	<p>If 18 apples are arranged into equal rows of 6 apples, how many rows will there be?</p> <p><i>Area example.</i> A rectangle has area 18 square centimeters. If one side is 6 cm long, how long is a side next to it?</p>
Compare	<p>A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost?</p> <p><i>Measurement example.</i> A rubber band is 6 cm long. How long will the rubber band be when it is stretched to be 3 times as long?</p>	<p>A red hat costs \$18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost?</p> <p><i>Measurement example.</i> A rubber band is stretched to be 18 cm long and that is 3 times as long as it was at first. How long was the rubber band at first?</p>	<p>A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat?</p> <p><i>Measurement example.</i> A rubber band was 6 cm long at first. Now it is stretched to be 18 cm long. How many times as long is the rubber band now as it was at first?</p>
General	$a \times b = ?$	$a \times ? = p$ , and $p \div a = ?$	$? \times b = p$ , and $p \div b = ?$

<p>I threw my plane 8 feet farther than Tom. If Tom threw his 4 feet, how far did I throw mine?</p>	<p>There are 4 bags. In bag are 8 apples. How many apples in all?</p>	<p>A hat costs 4 times more than socks. If the hat costs \$8, how much do the socks cost?</p>	<p>There are 24 students. Vans can hold 8 students. How many vans needed to take the field trip.?</p>																	
$8 + 4 = ?$	$8 \times 4 = ?$ $8 + 8 + 8 + 8 = ?$ $? \div 4 = 8$	$\$8 \div 4 = ?$ $? \times 4 = \$8$	$24 \div ? = 8$ $8 \times ? = 24$																	
<p>More than Add to Farther, longer, heavier, older....</p>	<p>8 apples per bag equal groups of 8 each bag had...</p>	<p>Times more Times less</p>	<p>Equal groups How many can fit in... 8 students in each 8 per van</p>																	
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<p>Jose has 3 juice boxes. Each box has 8 ounces. How many ounces of juice does he have?</p>	<p>There are 24 desks arranged in a rectangle. If there are 4 equal rows How many in each row?</p>	<p>Nic has 24 plums. He puts two in each bag. How many bags needed?</p>	<p>A rubber band was 6 in. It got stretched to 24 in. How many times longer is it now?</p>
<p><math>8 + 8 + 8 = ?</math> <math>8 \times 3 = ?</math></p>	<p><math>24 \div 4 = ?</math></p>	<p><math>24 \div ? = 2</math> <math>2 \times ? = 24</math> <math>2 + 2 + 2 + \dots = 24</math></p>	<p><math>6 \times ? = 24</math> <math>24 \div ? = 6</math> <math>6 + 6 + 6 + \dots = 24</math></p>
<p>Unknown product 3 groups of 8 part + part + part = ? part times three = ?</p>	<p>How many per group? Whole <i>put into</i> 4 equal parts Array or area model</p>	<p>How many groups? Repeated subtraction</p>	<p>Comparing How many times greater?</p>
			

<p>I picked 7 apples. Mom picked 4 apples. How many more do we need to get to 20 apples?</p>	<p>I watched 6 TV shows. Each show was 30 min. How many hours did I watch?</p>	<p>I have 12 dollars. Joe has twice as much as me. How much do we have in all?</p>	<p>I have a rectangular pool. It takes 56 steps to walk around it. The long side is 20 steps. How many steps is the short side?</p>
$7 + 4 = ?$ $20 - 11 = x$	$6 \times 30 = 180 \text{ min}$ $60 \text{ min} = 1 \text{ hr}$ $60 + 60 + 60 = 180 \text{ min}$ $1 \text{ hr} + 1 \text{ hr} + 1 \text{ hr} = ? \text{ hrs}$	$12 + (12 + 12) = ?$	$l + w + l + w = 56$ $20 + w + 20 + w = 56$ $40 + w + w = 56$ $w + w = 16$
$7 + 4 = ?$ $11 + x = 20$	$2 \text{ TV shows} = 1 \text{ hr}$ $2 \text{ TV} + 2 \text{ TV} + 2 \text{ TV} = 6 \text{ TV}$ $1 \text{ hr} + 1 \text{ hr} + 1 \text{ hr} = ? \text{ hrs}$	$12 \times 2 = 24$ $24 + 12 = ?$	$\text{Perimeter} = 56$ $P - (l + l) = w + w$ $56 - 40 = w + w$ $16 = w + w$
			
			


**WHAT TYPE OF WORD PROBLEM?**

<p>I have 24 jelly beans. I want to put the same number of beans into 6 bags. How many beans in each bag?</p>	<p>There are 4 vans. In each van are 8 kids. How many kids in all?</p>	<p>I have 24 students. Each car can carry 4 students. How many cars to I need?</p>	<p>I am 6 times older than my dog. If my dog is 8 years old. How old am I?</p>												
<p>I have to cut the 12 in. piece of licorice into 4 equal pieces. How long should each piece be?</p>	<p>I have 4 pieces of string. Each piece is 8 in. How long is the string if I put the pieces together?</p>	<p>I have 48 in. of string. How many 12 in. pieces can I cut from the 48 in.?</p>	<p>The rubber band was 8 cm long. I stretched it to 24 cm. How many times longer did it get?</p>												
<p>28 desks have to be arranged into 4 equal rows. How many desks in each row?</p>	<p>There are 6 rows. There are 8 desks in each row. How many desks in all?</p>	<p>I have 48 desks. I pull out 4 desks to make a row. How many rows can I make?</p>	<p>I have a rubber band. I stretched it 5 times longer that it was. Now it's 30 cm. How long was it before?</p>												
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Size unknown	Size unknown														
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<p><b>EQUAL GROUPS</b></p>	<p><b>ARRAY/AREA</b></p>	<p><b>COMPARE</b></p>	<p><b>MEASUREMENT</b></p>												

÷ INTO EQUAL GROUPS  
HOW MANY IN EACH GROUP?

PRODUCT UNKNOWN

HOW MANY CAN FIT IT?  
HOW MANY GROUPS?

POSSIBLE ANSWERS

<p>I have 24 jelly beans. I want to put the same number of beans into 4 bags. How many beans in each bag?</p>	<p>There are 4 vans. In each van there are 8 kids. How many kids in all?</p>	<p>I have 24 students. Each car can carry 4 students. How many cars to I need?</p>	<p>EQUAL GROUPS</p>																								
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<p>I have a rubber band. I stretched it 4x longer that it was. Now it's 36 cm. How long was it before?</p>	<p>I am 4 times older than my dog. If my dog is 8 years old. How old am I?</p>	<p>The rubber band was 8 cm long. I stretched it to 40 cm. How many times longer did it get?</p>	<p>COMPARE</p>																								