

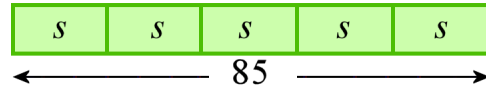
# Review: Multiplication and Division

**Multiplication** and **division** have to do with things or groups of the same size.

When you multiply the number of groups by the amount in each group (or the other way around), you get the total.

When you divide the total by the number of groups, you get the amount in each group.

When you divide the total by the amount in each group, you get the number of groups.



Five equal-sized groups make a total of 85. We can write a fact family:

$$5 \times s = 85$$

$$85 \div 5 = s$$

$$s \times 5 = 85$$

$$85 \div s = 5$$

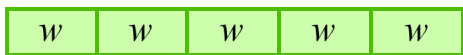
Which equation above can be used to find (or solve) the unknown  $s$ ?

1. Write four equations for each bar model (a fact family). Then solve for  $w$ .



a.

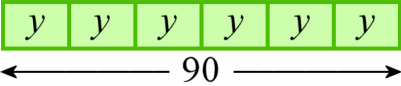
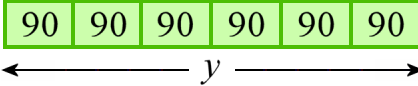
$w =$  \_\_\_\_\_



b.

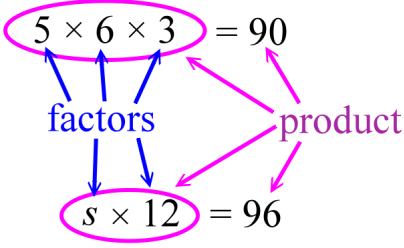
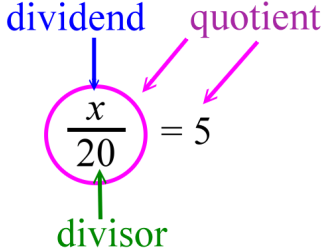
$w =$  \_\_\_\_\_

2. Which equation matches which bar model? Also solve for  $y$ .

<u>Equations:</u> $6 \times y = 90$ $y \div 6 = 90$	a. 	b. 

3. Draw a bar model to represent the equations. Then solve them.

a. $R \div 5 = 120$
b. $5 \times R = 120$
c. $y \times 12 = 600$
d. $y \div 12 = 60$

<p><b><u>Product and factors</u></b></p>  <p>The numbers that are being multiplied are called <b>factors</b>.</p> <p>The result is called a <b>product</b>—even if you have not yet calculated it. So “5 × 6” is called a product.</p>	<p><b><u>Dividend, divisor, and quotient</u></b></p>  <p>The number you divide is called the <b>dividend</b>. The number you divide by is the <b>divisor</b>.</p> <p>The result is the <b>quotient</b>, even if it has not yet been solved. So “x ÷ 20” is a quotient (of x and 20).</p>
<p><b>Examples:</b></p> <p>5 × 6 is a product. 5 and 6 are the factors.</p> <p>s × 12 is a product: it is the product of s and 12.</p> <p>You can call 5 × 6 × 3 the <i>product written</i>, and the answer 90 you can call the product that has been <i>solved</i> or <i>calculated</i>.</p>	<p><b>Examples:</b></p> <p>The quotient of 100 and 5 is written as 100 ÷ 5, or using the division line as <math>\frac{100}{5}</math>. We can solve or calculate that to get 20.</p> <p>The quotient of x and 20 is written x ÷ 20 or as <math>\frac{x}{20}</math>.</p>

4. Write an expression or an equation to match each written sentence.

<p><b>a.</b> The product of 52 and 8.</p>	<p><b>b.</b> The quotient of 15,000 and 300</p>
<p><b>c.</b> The product of 4, S, and 18.</p>	<p><b>d.</b> The quotient of 80 and x.</p>
<p><b>e.</b> The quotient of 240 and 8 is 30.</p>	<p><b>f.</b> The product of 3, 5, and T is 60.</p>

5. Write a division equation where the dividend is 280, the quotient is 4, and the divisor is unknown. Use a letter for the unknown. Then find the value of the unknown.

6. Write a division equation where the quotient is 3, the divisor is 91, and the dividend is unknown. Use a letter for the unknown. Then find the value of the unknown.

7. For each division, write a matching *multiplication*, using the same numbers and letters.

<b>a.</b> $210 \div 30 = 7$	<b>b.</b> $N \div 12 = 60$	<b>c.</b> $N \div 21 = 7$
<b>d.</b> <i>Explain in words</i> how you can solve for N in problems (b) and (c) above.		

8. For each multiplication, write *two* matching divisions.

<b>a.</b> $30 \times 15 = 450$	<b>b.</b> $2 \times N = 520$	<b>c.</b> $N \times 5 = 65$
<b>d.</b> <i>Explain in words</i> how you can solve for N in problems (b) and (c) above.		

9. Write another matching division using the same numbers and letters.

<b>a.</b> $72 \div 9 = 8$	<b>b.</b> $350 \div N = 50$	<b>c.</b> $126 \div N = 6$
<b>d.</b> <i>Explain in words</i> how you can solve for N in problems (b) and (c) above.		

10. Solve for the unknown N or M.

<b>a.</b> $5 \times M = 20$	<b>b.</b> $M \div 3 = 5$	<b>c.</b> $45 \div M = 5$
<b>d.</b> $4 \times N = 8,800$	<b>e.</b> $N \div 20 = 600$	<b>f.</b> $64,000 \div N = 800$