

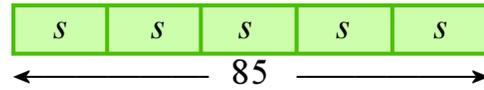
Review: Multiplication and Division

Multiplication and division of whole numbers 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.

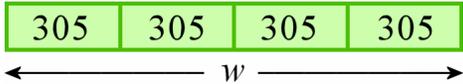
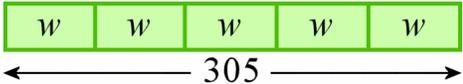


We can write four equations to match the model:

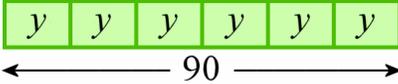
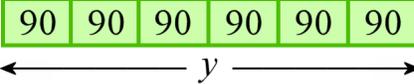
$$5 \times s = 85 \qquad 85 \div 5 = s$$

$$s \times 5 = 85 \qquad 85 \div s = 5$$

1. Write one multiplication equation and one division equation for each bar model. Then solve for w .

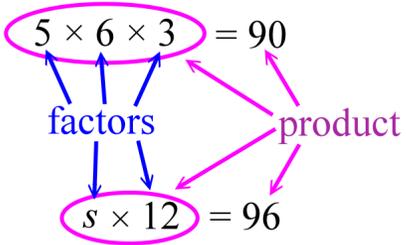
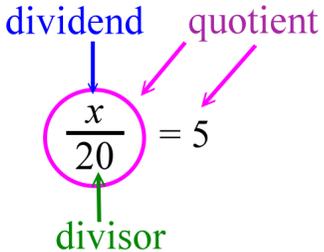
<p>a. </p> <p>_____ \times _____ = _____</p> <p>_____ \div _____ = _____</p> <p>$w =$ _____</p>	<p>b. </p> <p>_____ \times _____ = _____</p> <p>_____ \div _____ = _____</p> <p>$w =$ _____</p>
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2. Which equation matches which bar model? Also, solve for y .

<p><u>Equations:</u></p> <p>$6 \times y = 90$</p> <p>$y \div 6 = 90$</p>	<p>a. </p> <p>$y =$ _____</p>	<p>b. </p> <p>$y =$ _____</p>
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3. Draw a bar model to represent each equation, and solve the equation.

<p>a. $R \div 5 = 120$</p>	<p>b. $5 \times R = 120$</p>
<p>c. $y \div 12 = 60$</p>	

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

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

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

Look carefully at this expression: $3 \times 47 + 8 \times 47$. Think of it as three copies of 47, and another eight copies of 47. In total, we have 11 copies of 47, or 11×47 .

Similarly, $9 \times 165 - 4 \times 165$ is like saying that we have 9 copies of the number 165, and we take away four copies of that number. What is left? Five copies of that number, or 5×165 .

7. For each two expressions, decide if the answers are the same or not. Do *not* calculate the answers.

a. $3 \times 417 - 417$ 2×417	b. $6 \times 799 - 2 \times 799$ 3×799	c. $389 + 389 + 389 + 72 + 72 + 72$ $3 \times 389 + 3 \times 72$
d. 16×68 $9 \times 68 + 7 \times 68$	e. $500 - 25 + 19$ $500 - (25 + 19)$	f. $832 - 225 - 195$ $832 - (225 + 195)$

8. Which number sentence matches the problem? *You don't have to calculate the answer.*

The sides of a rectangular park measure 26 ft and 43 ft. Ashley ran around it three times. What is the distance she ran?

- a.** $(26 + 43) \times 3$ **b.** $3 \times 2 \times (26 + 43)$
c. $26 + 43 + 26 + 43$ **d.** $3 \times 26 + 43 + 26 + 43$

9. Look at the division equations. In each, the *dividend* is the unknown. Explain how you can find the unknown. (You don't have to actually solve the equations; just explain *how* to solve them.)

$x \div 5 = 4$ $N \div 12 = 60$
 $y \div 8 = 100$ $M \div 83 = 149$

10. Look at the division equations. In each, the *divisor* is the unknown. Explain how you can find the unknown. (You don't have to actually solve the equations; just explain *how* to solve them.)

$16 \div x = 8$ $350 \div N = 50$
 $72 \div y = 9$ $120 \div M = 6$

11. Solve for the unknown N or M.

a. $5 \times M = 20$	b. $M \div 3 = 5$	c. $45 \div M = 5$
d. $4 \times N = 8,800$	e. $N \div 20 = 600$	f. $640 \div N = 80$

Balance Problems and Equations 1

Here you see a pan balance, or scales, and some things on both pans. Each rectangle represents an unknown (and “weighs” the same, or has the same value).

Since the balance is *balanced* (neither pan is going down—they are level with each other), the two sides (pans) of the scales weigh the same.

This portrays a mathematical equation: what is in the left pan equals what is in the right pan. (Things in the same pan are simply added.)

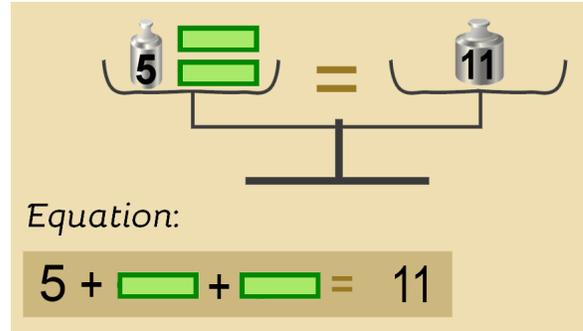
The equation is:

$$5 + \square + \square = 11$$

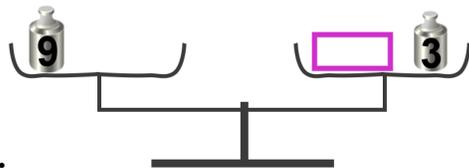
(If it helps you, you can think of kilograms or pounds.)

When we figure out how much the unknown shape weighs, we solve the equation.

The solution is: $\square = 3$

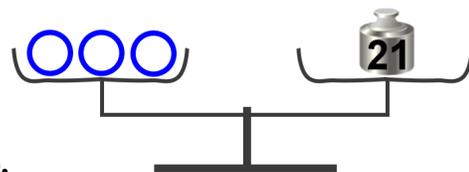


1. Write an equation for each balance. Then use mental math to solve how much each geometric shape “weighs.” You can write a number inside each of the geometric shapes to help you.



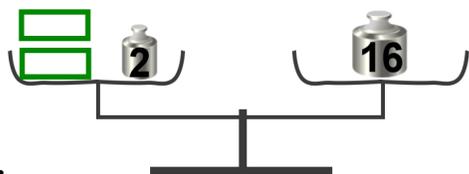
Equation: $9 = \square + 3$

Solution: $\square = 6$



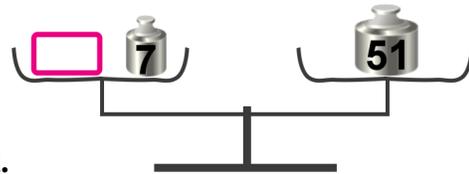
Equation:

Solution: $\bigcirc = \underline{\hspace{2cm}}$



Equation:

Solution: $\square = \underline{\hspace{2cm}}$



Equation:

Solution: $\square = \underline{\hspace{2cm}}$