Identifying multiplication

When we first learned about multiplication, we most likely learned about the times symbol, $\times$. Now that we're getting into more advanced math, the traditional $\times$ symbol can often be confused with the variable x.

Instead, we'll start using parentheses or a dot to indicate multiplication. All of these are different ways of indicating multiplication,

Times	$a \times b = c$
Dot	$a \cdot b = c$
Parentheses	$(a)(b) = c$
Variables next to each other	$ab = c$

but we'll stop using the times symbol and start using the other three options.

The last way to indicate multiplication (without any multiplication symbol) is used only for multiplication of two or more variables (like ab or xyz) or for multiplication of a number by one or more variables (like $3x$ or $4ac$).

If we're multiplying two numbers, like $3 \cdot 4$, we have to use a multiplication symbol to avoid confusing $3 \cdot 4$ with 34.

Example

Write 5 times 2 in three different ways.

When we multiply 5 and 2 together, we can write the product as

$$5 \times 2 = 10$$

$$5 \cdot 2 = 10$$

$$(5)(2) = 10$$

Let's try another example to identify multiplication.

Example

Simplify the expression.

$$2 \cdot 4 \times 3(5)(2 \cdot 2)$$

All of these symbols represent multiplication. Multiplication can be done in any order, so if we multiply these values together, we get

$$8 \times 3(5)(2 \cdot 2)$$

$$8 \times 15(4)$$

$$8 \times 60$$

$$480$$
