

$$5 \times 7 = 35$$
$$20 + 2 = 22$$

Introducing Expressions



Common core icons



This icon indicates a slide where the Standards for Mathematical Practice are being developed. Details of these are given in the Notes field.



Slides containing examples of mathematical modeling are marked with this stamp.



This icon indicates an opportunity for discussion or group work.

The **Standards for Mathematical Practice** outlined in the Common Core State Standards for Mathematics describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

These are:

- 1) Make sense of problems and persevere in solving them.**
- 2) Reason abstractly and quantitatively.**
- 3) Construct viable arguments and critique the reasoning of others.**
- 4) Model with mathematics.**
- 5) Use appropriate tools strategically.**
- 6) Attend to precision.**
- 7) Look for and make use of structure.**
- 8) Look for and express regularity in repeated reasoning.**



This icon indicates that the slide contains activities created in Flash. These activities are not editable.



This icon indicates teacher's notes in the Notes field.

What is an expression?

An **expression** is a collection of numbers and symbols.
For example:

$$40 - (5 \times 6)$$

If we were to find an answer to this expression,
we might write this:

$$40 - (5 \times 6) = 10$$

This is called **evaluating** an expression.

When we add an equals sign, we have made
an **equation**.



Number sentences come with a set of rules, just like written words and sentences!

We usually read a number sentence from **left to right**, but there are certain parts that have **priority**. We pay attention to these parts first.

To tell us which parts have priority, we follow a set of rules called the **order of operations**.





P

E

M

D

A

S

We can use **PEMDAS** to help us remember the right order for complicated calculations.

Press on each of the tabs to learn more about PEMDAS.



What's the answer?



Alex and Nicole are both asked to calculate $30 - 18 \div 6$.

I think the answer is 2.

I think the answer is 27.

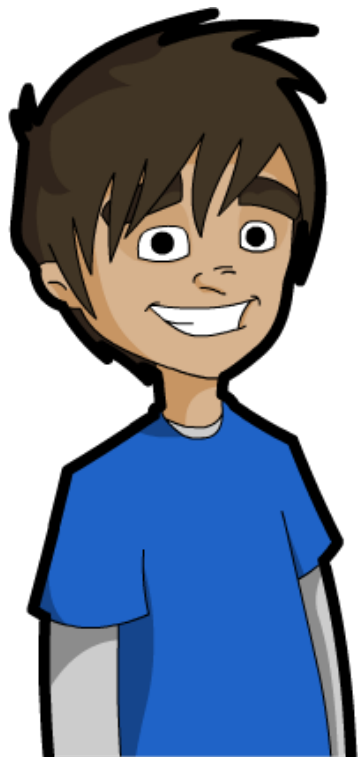
Who is correct?

Nicole is correct:

$$18 \div 6 = 3$$

$$30 - 3 = 27$$

What did Alex do wrong?





Test your knowledge of expressions in this team quiz! Get into two teams: A and B.

Each team will be represented by a basketball player. If your team answers a question correctly, your basketball player will score a point.

The team with the highest score wins!

Press **start** to begin.

start





Can you make
these equations true?

Work out where to add parentheses
so that each equation becomes true.

Press each equation to reveal
the correct answer.

Press **start** to begin.

start

000 100 + 5 + 7 = 550





We can make expressions from words. Let's try it out!

Six is added to four and then the quantity is doubled.

“Six is added to four...”

$$6 + 4$$

“... and then the quantity is doubled.”

$$2(6 + 4)$$





Can you make expressions from these?

- Add 8 and 7, then multiply by 2.

$$2(8 + 7)$$

- Five is multiplied by four and added to the product of six and three.

$$(5 \times 4) + (6 \times 3)$$

- Six is subtracted from triple the sum of two and eight.

$$3(2 + 8) - 6$$



Written expressions activity



Match the written expressions to the numerical expressions

Three is added to four and
the quantity is tripled

$$3(3 + 4)$$

Four times the sum of two
and three and four

$$(3 \times 2) + (4 \times 3)$$

Four is subtracted from double
the sum of two and three

$$4(2 + 3 + 4)$$

Three is multiplied by two and added
to the product of four and three


$$2(2 + 3) - 4$$





Expressions in real life

Gracie is saving up for a video game system. Here is a description of her savings:



Gracie earned \$5 for each of the six hours she did yard work. Her brother offered to pitch in \$40, and Gracie had \$50 from her birthday. She spent \$10 on snacks at the store. Her mom said she would match the amount of money Gracie had saved.

