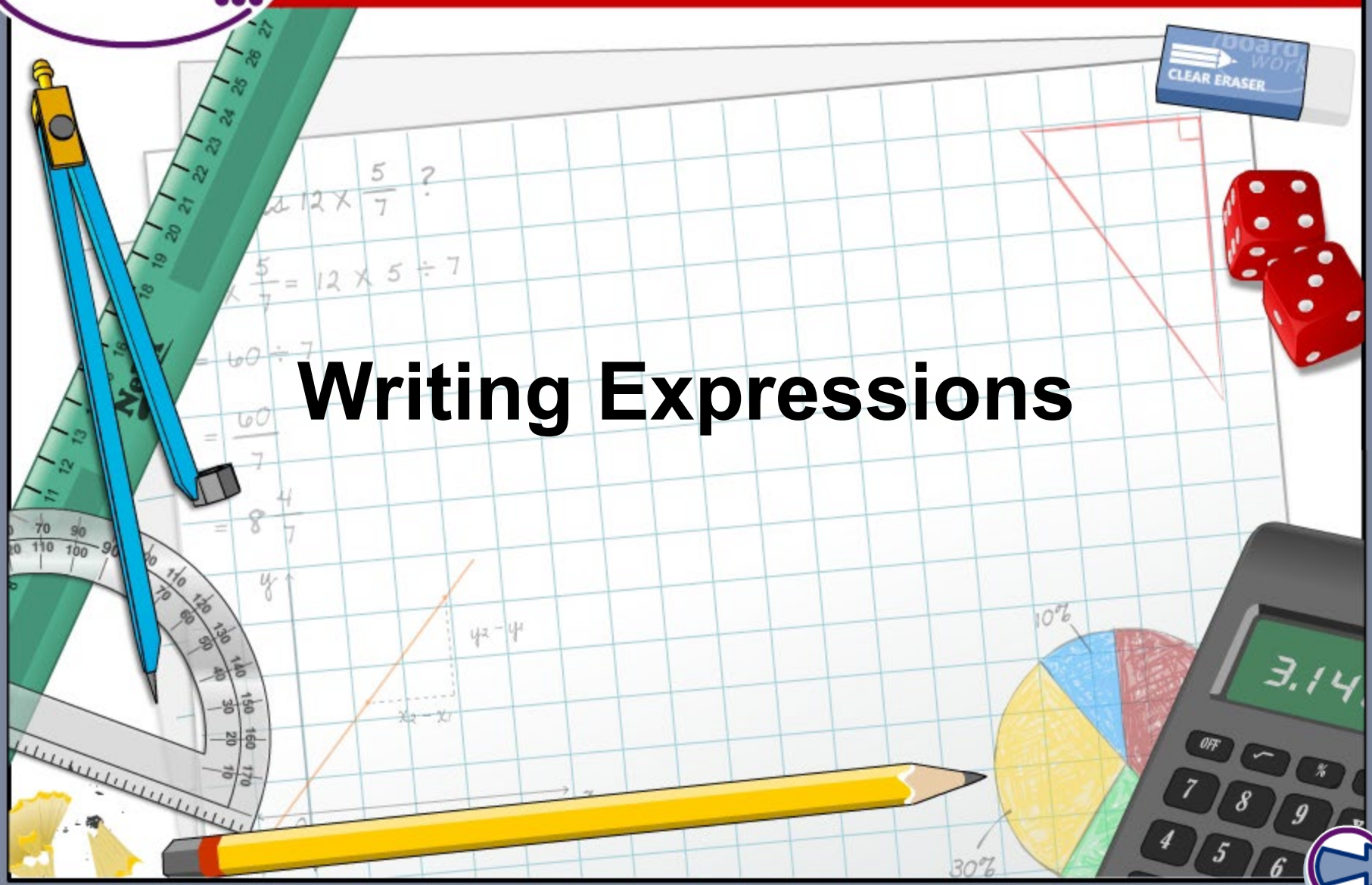


Writing Expressions

Information

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.

They 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.

Writing an expression

Andre has a jar of cookies and he doesn't know how many cookies it contains. He opens the jar and eats 4 cookies.

Can you work out how many cookies are left, in terms of the number of cookies originally in the jar?

Andre calls the number of cookies in the full jar, c.

What is the **expression** for the number of cookies left in the jar?

$c - 4$

Using unknowns

In math, sometimes we can find out useful information about a situation, even if we don't know all of the facts.

For example, we don't know how many cookies were originally in Andre's jar.

The original number of cookies in the jar, c, is an **unknown** or a **variable**.

Letters and **symbols** are often used to represent variables.

The **expression** to represent the number of cookies left is:

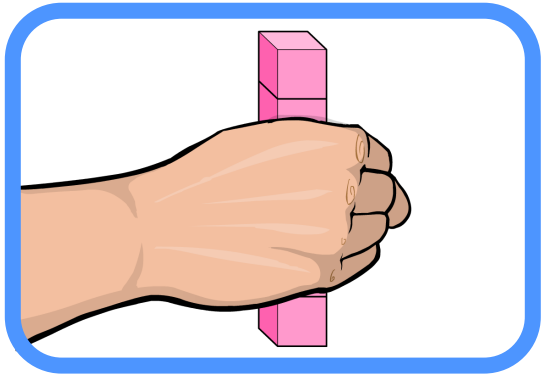
$$c - 4$$

Writing algebra

When a variable, represented by a symbol or letter, is multiplied by a number, we don't need to use the multiplication symbol (×).

Hidden values

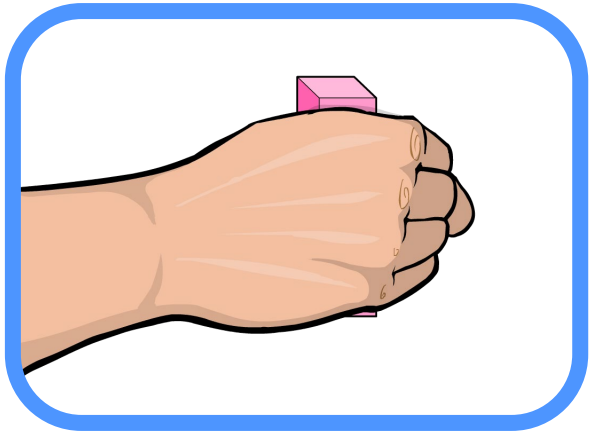
Ms. Rodriguez is holding n number of cubes in her hand:



Write an expression for the number of cubes in her hand if:

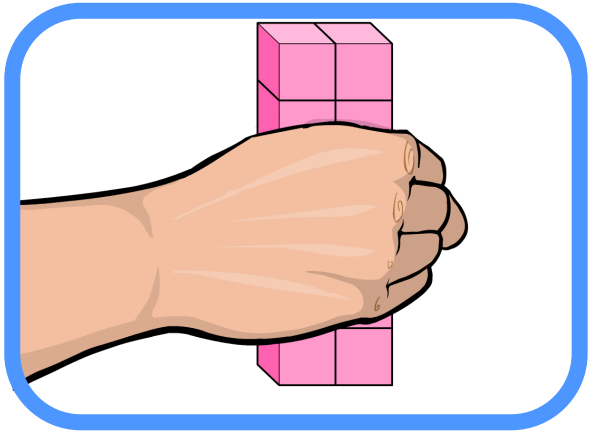
She takes 3 cubes away.

$n - 3$



She doubles the number of cubes.

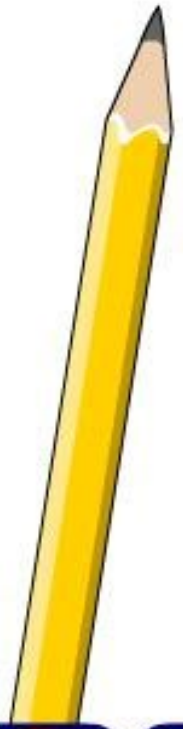
$2n$



Can n equal 1.5? Why or why not?

Matching descriptions to expressions

Match the descriptions to the correct expressions.



Using expressions

Leah earns $100 a month working in her parents' store on the weekends. She also earns $8 an hour babysitting the kids next door, but only when she is needed.

What expression can we write for Leah's monthly income?

Monthly income = 100 + (8 × number of hours babysitting)

In symbols, this is:

$$I = 100 + 8h$$

where I is Leah's monthly income and h is the number of hours she spends babysitting.

Using expressions

Leah spends 12 hours babysitting in April. How much does she earn in April, in total?

$$I = 100 + 8h$$

Income, I $= 100 + (8 \times 12)$

$= 100 + (96)$

$= \mathbf{\$196}$

Leah owes her brother $40 and wants to buy a new bike for $150. Does she have enough?

How to write an expression

Arley drives 100 miles. Her car gets 16 miles per gallon. One gallon of gas costs $4. How much money does she need?

Click the buttons for help:

- Identify
- Describe
- Substitute
- Calculate

Newspaper advertisement

Emilio wants to place an advertisement in the paper to find his lost dog. Each ad costs $15 and each word costs an additional $2.

If Emilio's ad contains 20 words, what is the cost?

Write an expression for the cost of the ad.

$$\text{Cost, } c = 15 + 2n$$

where n is the number of words.

$$c = 15 + 2 \times 20$$

$$= 15 + 40$$

$$= \mathbf{\$55}$$

Real-life examples

Q1/5 Alana can swim 20 lengths in 10 minutes, which is 6 more than she needs to qualify for the swim team. Which of these expressions give the number of lengths needed to qualify?

$\frac{20}{6}$

$20 - 6$

$20 + 6$