UNIT 7 · STANDARD 6.EE.6

Write Equations Flagship

Lesson 7-1-flagship

Name: Date: Class:

COLD CASE MISSION

The Equation Vault

You are Detective Ruiz's new code analyst. A tip just came in: 'A number of stolen gems plus 8 more equals 20 total.' The evidence vault only opens when the clue is translated into a correct equation. Master writing equations and the case cracks wide open.

Key Vocabulary Level 1 support

Picture first, then the word, then a plain-language meaning. Say each word out loud.

x + 5 = 12 means 'some number plus 5 equals 12'

Equation

A math sentence with an equal sign showing both sides are the same.

In n + 3 = 10, the letter n stands for the unknown number (n = 7)

Variable

A letter that stands for an unknown number.

7 + 3 = 10 — both sides equal 10

Equal sign

The = sign, showing both sides are the same.

2x + 5 is an expression; it becomes an equation when you write 2x + 5 = 15

Expression

A math phrase with numbers and letters, but no equal sign.

Key Ideas & Notes

- Detective Ruiz received a tip: 'A number of stolen gems plus 8 more equals 20 total gems.' She needs to write an equation to represent this clue before she can solve the case.
- How would you write this situation as an equation?
- Use the balance scale to see how each word problem translates into an equation. Drag the correct expression to each side of the scale to make it balance.

Think About It

- What quantity is unknown in this situation?
- What does 'plus 8 more' tell you about the operation?
- What does 'equals 20 total' tell you?

My Notes

Guided Examples

Example 1

Which equation represents: 'A number plus 12 equals 30'?

Solution: 'Plus' means addition, so the equation is $n + 12 = 30$.

Answer: A. $n + 12 = 30$

Example 2

Which equation represents: 'Seven less than a number is 18'?

Solution: 'Seven less than a number' means start with the number and subtract 7: $n - 7 = 18$.

Answer: A. $n - 7 = 18$

Example 3

Which equation represents: 'Three times a number equals 21'?

Solution: 'Three times' means multiply by 3, so the equation is $3n = 21$.

Answer: A. $3n = 21$

Write About the Math

The Writing Revolution

I can explain my equation using the words equation, variable, equal sign, and expression.

1. Kernel Sentence

subject + verb

Model: Equation is a math sentence with an equal sign showing both sides are the same.
Ecuación es una oración matemática con un signo igual que muestra que ambos lados son iguales.

Write a kernel sentence about equation. Use a subject and a verb.
Escribe una oración base sobre ecuación. Usa un sujeto y un verbo.

2. Sentence Expansion

because · but · so

Kernel: Equation matters in math
Ecuación importa en matemáticas

Expand the kernel three ways. Add a reason, a contrast, and a result.

because / ***porque***

Equation matters in math because ____.
Ecuación importa en matemáticas porque ____.

but / ***pero***

Equation matters in math, but ____.
Ecuación importa en matemáticas, pero ____.

so / ***entonces***

Equation matters in math, so ____.
Ecuación importa en matemáticas, entonces ____.

3. Sentence Types

4 ways to write a math idea

Statement
Afirmación

Tell one true fact about equation.
Di un hecho verdadero sobre equation.

Equation ____.

Question
Pregunta

Ask a question about equation.
Haz una pregunta sobre equation.

How does ____ ?
¿Cómo ____ ?

Exclamation
Exclamación

Show excitement about equation.
Muestra entusiasmo sobre equation.

Wow, ____ !
¡Guau, ____ !

Command
Mandato

Tell a partner what to do with equation.
Dile a un compañero qué hacer con equation.

First, ____ .
Primero, ____ .

---

4. Explain Your Reasoning

use a sentence starter

I know ____ because ____.
Sé que ____ porque ____.

First I ____, then I ____.
Primero ____, luego ____.

This is important because ____.
Esto es importante porque ____.

Try It

Solve on your own. Check the answer key when you are done.

1. Which equation represents: 'A number divided by 4 equals 8'?

A. $n / 4 = 8$

B. $4n = 8$

C. $n - 4 = 8$

D. $n + 4 = 8$

Show your work:

2. A detective found some fingerprints on Monday and 14 more on Tuesday, for a total of 30. Which equation represents this?

A. $f + 14 = 30$

B. $f - 14 = 30$

C. $14f = 30$

D. $f / 14 = 30$

Show your work:

Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

Write a real-world situation that can be modeled by the equation n / 5 = 9. Explain what n represents and verify your equation makes sense.

Sentence starter: Situation: ____. In this problem, n represents ____. Check: n = ____ because ____ ÷ 5 = 9.

Show your work:

Reflect — Exit Ticket

Which equation represents: 'A number divided by 6 equals 9'?

A. n / 6 = 9

B. 6n = 9

C. n − 6 = 9

D. n + 6 = 9

Your answer:

Answer Key & Teacher Guide

1. **Try It 1:** A. n / 4 = 8 — *'Divided by 4' means division: n / 4 = 8.*
2. **Try It 2:** A. f + 14 = 30 — *The detective's Monday fingerprints (f) plus 14 more equals 30: f + 14 = 30.*
3. **Exit Ticket:** A. n / 6 = 9 — *'Divided by 6' means division: n / 6 = 9. Check: 54 / 6 = 9 ✓*

Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Equation is a math sentence with an equal sign showing both sides are the same.
- **Expansion:** *because* gives a reason, *but* shows a contrast or exception, *so* shows a result. Answers vary; each must keep the kernel idea and add the correct kind of detail.
- **Sentence types:** Statement ends with a period, question with "?", exclamation with "!", and a command starts with an action verb (a "bossy" verb).