Chapter 1.3 Variables, Expressions & Equations

Variable

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Note

Expression

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Method Evaluating a variable

1.
2.
3.

Eg Given $p=3$. Evaluate $2p^3$

① Let $x=3$. Evaluate $3x+5x^2-4$

② Let $x=6$, $y=9$. Evaluate $\frac{4x-2y}{x+1}$.

③ Let $x=4$. Evaluate $\frac{4x-1}{3x}$.

Changing Words into Mathematical Statements

1. Addition: +

eg The total of 43 and a number.

eg 15 more than what we had before.

2. Subtraction: −

eg A number reduced by 38.

eg 92 less than a certain number.

3. Multiplication: *

(eg) 2 less than 17 times a number.

(eg) Twice the product of a number and 6.

4. Division: ÷

(eg) The quotient of 17 divided by 84.

(eg) 72 divided into the sum of a number and 9.

Equations

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Solution to an equation

(eg) Is the equation below true if $x=3$?

$5x+7=4x+10$

① Is the equation below true if $x=5$ and $y=6$?

$7x+3=6y+2$

② Is the equation below true if $x=\frac{12}{5}$?

$2x+3x+8=20$

③ Is the equation below true if $x=\frac{13}{4}$?

$\frac{x+6}{x-2}=\frac{37}{5}$

5. Equality

Translate from words into an equation.

① The sum of 4 times a number and 8 is 87.

② Four times the sum of a number and 8 is 87.

③ Seven plus twice the sum of six and a number is less than 19.

eg Given the set of numbers $\{2, 4, 6, 8, 10\}$ are any of these numbers solutions to the equation given by the statement:
"The sum of six-fifths of a number and 2 is 14."