Writing Expressions Where Letters Stand for Numbers

Lesson # 6

Addressing

6.EE.A.2.a Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation "Subtract y from 5" as $5 - y$.

6.EE.A.2.c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.

6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

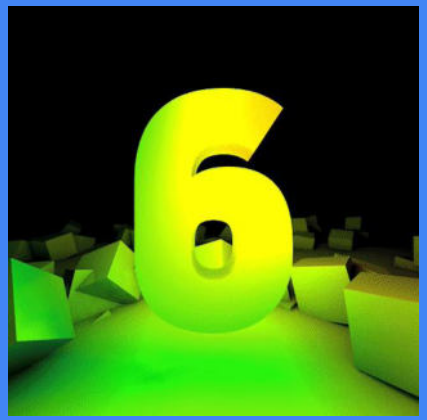
Let’s use expressions with variables to describe situations.

Today’s Goals

- ❏ can use an expression that represents a situation to find an amount in a story.
- ❏ I can write an expression with a variable to represent a calculation where I do not know one of the numbers.

Algebra Talk: When x is 6

Warm Up 6.1



Do you remember what x^2 means?

If x is 6 what is...

- $x + 4$
- $7 - x$
- x^2
- $\frac{1}{3}x$

Students, draw anywhere on this slide!

Lemonade Sales and Heights

Activity 6.2

- Anticipate, Monitor, Select, Sequence, Connect
- MLR2: Collect and Display

Work quietly for 10 minutes

1. Lin set up a lemonade stand. She sells the lemonade for $0.50 per cup.

   a. Complete the table to show how much money she would collect if she sold each number of cups.

lemonade sold (number of cups)	**12**	**183**	c
money collected (dollars)			

   b. How many cups did she sell if she collected $127.50? Be prepared to explain your reasoning.

2. Elena is 59 inches tall. Some other people are taller than Elena.

   a. Complete the table to show the height of each person.

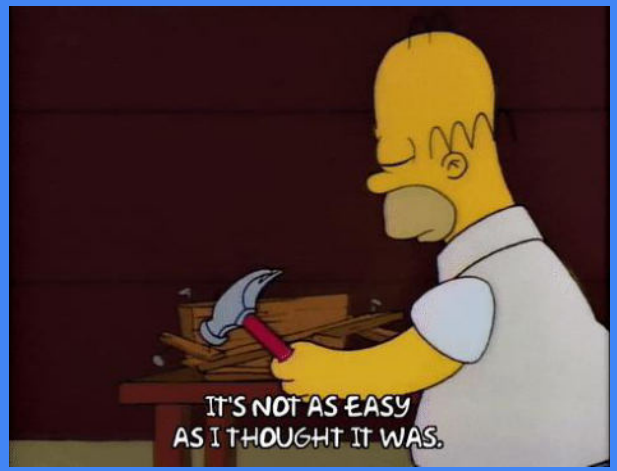
person	**Andre**	**Lin**	**Noah**
how much taller than Elena (inches)	4	$6\frac{1}{2}$	d
person's height (inches)			

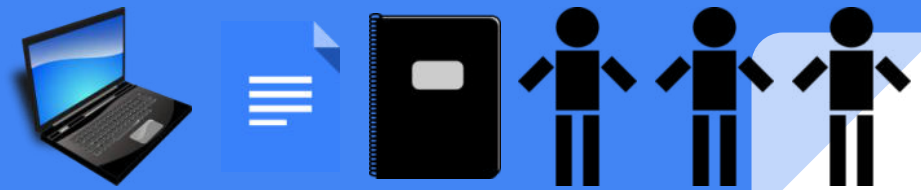
   b. If Noah is $64\frac{3}{4}$ inches tall, how much taller is he than Elena?

Building Expressions

Activity 6.3

- MLR8: Discussion Supports
- Think Pair Share





- Work quietly (5-7 minutes)
- Share with a partner (3-5 minutes)

1. Clare is 5 years older than her cousin.

   a. How old would Clare be if her cousin is:

   10 years old? 2 years old? x years old?

   b. Clare is 12 years old. How old is Clare's cousin?

2. Diego has 3 times as many comic books as Han.

   a. How many comic books does Diego have if Han has:

   6 comic books? n books?

   b. Diego has 27 comic books. How many comic books does Han have?

- Work quietly (5-7 minutes)
- Share with a partner (3-5 minutes)

3. Two fifths of the vegetables in Priya's garden are tomatoes.

   a. How many tomatoes are there if Priya's garden has:

      20 vegetables? x vegetables?

   b. Priya's garden has 6 tomatoes. How many total vegetables are there?

4. A school paid $31.25 for each calculator.

   a. If the school bought x calculators, how much did they pay?

   b. The school spent $500 on calculators. How many did the school buy?

Let’s Talk About It

- What facts describing each situation helped you write the expression?
- How did you use the expression to write an equation?
- Why were you able to set the quantities on each side of the equation equal to each other?
- What strategies did you use to solve each equation?
- How did you check that your solution was correct?

Are you ready for more?

Kiran, Mai, Jada, and Tyler went to their school carnival. They all won chips that they could exchange for prizes. Kiran won $\frac{2}{3}$ as many chips as Jada. Mai won 4 times as many chips as Kiran. Tyler won half as many chips as Mai.

1. Write an expression for the number of chips Tyler won. You should only use one variable: J, which stands for the number of chips Jada won.
2. If Jada won 42 chips, how many chips did Tyler, Kiran, and Mai each win?

Lesson Synthesis

- **Work with your partner**
- **One of you should make a situation similar to the ones we worked on today**
- **The other partner should assign a value to one quantity and let the other be unknown**
- **Write and solve an equation for the situation**

Today’s Goals

- ❏ can use an expression that represents a situation to find an amount in a story.
- ❏ I can write an expression with a variable to represent a calculation where I do not know one of the numbers.

Crazy Eights

Cool Down 6.4