Unit 6, Lesson 7

Write Expressions with Variables

Let's use expressions with variables to describe situations.

7.1 Priya's Points

Priya is on her school's esport team. She scored 473 points in the last match. Noah, Elena, and Clare each scored fewer points than Priya did.

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7.2 Scores and Stickers

1. Priya scored 473 points in an esport match.

   a. The table shows how Noah, Elena, and Clare scored compared to Priya. Complete the table.

	Noah	Elena	Clare
points fewer than Priya's score	101	53	18
score			

   b. Another esport player scored p fewer points than Priya. Write an expression that can be used to find their score. Explain your reasoning.

2. Noah made stickers that show his team's logo. He sells them for $0.50 per sticker.

   a. Complete the table to show how much money Noah would collect if he sold each number of stickers.

stickers sold	12	183	s
money collected (dollars)			

   b. How many stickers did Noah sell if he collected $127.50? Be prepared to explain your reasoning.

7.3 Building Expressions

1. Clare is 5 years older than her cousin.

   a. Suppose Clare's cousin is 10 years old. How can you find Clare's age?

   b. Write expressions to show Clare's age when her cousin is at different ages. Then record the answer.

Cousin is . . .	8 years old	2 years old	x years old
expression to show Clare's age			

   c. Clare is 12 years old. She said this equation, $x + 5 = 12$, can be used to find out how old her cousin is. Do you agree? Explain your reasoning.

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

   a. Suppose Han has 10 comic books. How can you find the number of comic books Diego has?

   b. Write expressions that can show how many comic books Diego has for different numbers of comic books that Han has. Then record the answer.

Han has . . .	6 books	17 books	n books
expression to show how many books Diego has			

   c. Diego has 27 comic books. How many comic books does Han have? Write an equation that represents the question and use it to find the answer.

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

   a. Suppose Priya's garden has 20 vegetables. How can you find the number of tomatoes?

   b. How many tomatoes are in Priya's garden if it has v vegetables?

   c. If Priya's garden has 6 tomatoes, how many vegetables are there? Write an equation that represents the question and use it to find the answer.

4. A school paid $31.25 for each calculator.

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

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

Lesson 7 Summary

Suppose you were born on the same day as your neighbor, but she is 3 years older than you. When you were 1, she was 4. When you were 9, she was 12. When you are 42, she will be 45.

If we let a represent your age at any time, your neighbor's age can be expressed $a + 3$.

your age	1	9	42	a
neighbor's age	4	12	45	$a + 3$

We often use a variable, such as x or a, as a placeholder for a number in expressions. Variables make it possible to write expressions that represent a calculation even when we don't know all the numbers in the calculation.

How old will you be when your neighbor is 32? We know your neighbor is 32. We also know your neighbor's age is your age plus 3, or $a + 3$. We can write the equation $a + 3 = 32$ to represent these relationships. When your neighbor is 32 you will be 29, because $a + 3 = 32$ is true when a is 29.