

Equation Detectives

Turn each story into a math sentence.

GRADE 5 • 5.PFA.2.b

5.PFA.2.b "Write an equation (with a single variable that represents an unknown quantity and one operation) from a contextual situation, using addition, subtraction, multiplication, or division."

NAME _____

DATE _____

PART 1: PRACTICE

A blank stands for the quantity you do not know. Read the story closely, then choose the one operation that matches what happens in the story.

WORKED EXAMPLE

A library has 27 new books and gets some more. Now it has 65 new books. Write an equation.

1. Let ____ stand for the number of books the library received.
2. The library started with 27 books and added more books.
3. Write the equation: $27 + \underline{\hspace{1cm}} = 65$.

Answer: $27 + \underline{\hspace{1cm}} = 65$

PRACTICE 6 problems

- 1** A 54-page comic has 19 pages left to read. Write an equation for the number of pages already read.

ANSWER _____

- 2** Eight packs have 72 trading cards altogether. Write an equation for the number of cards in each pack.

ANSWER _____

- 3** Ninety-six game tokens are shared equally among 6 teams. Write an equation for the number of tokens each team gets.

ANSWER _____

- 4** A playlist has 34 songs. Some songs are added, and now it has 81 songs. Write an equation for the number of songs added.

ANSWER _____

- 5** Seven identical mystery boxes hold 49 mini erasers altogether. Write an equation for the number of erasers in each box.

ANSWER _____

- 6** A player begins with 63 energy points and spends some. The player has 25 points left. Write an equation for the points spent.

ANSWER _____

APPLY IT Show your work

- 1** Nine friends bring the same number of canned foods for a food drive. Together, they bring 117 canned foods. Write an equation for the number of canned foods each friend brings.

WORK SPACE

ANSWER _____

- 2** A video game gives 144 coins equally across 12 levels. Write an equation for the number of coins earned in each level.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A class splits 135 photos equally among 15 albums. Write two different one-operation equations for the number of photos in each album. Then explain why both equations match the story.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A 54-page comic has 19 pages left to read. Write an equation for the number of pages already read.	$54 - \underline{\quad} = 19$
2	Eight packs have 72 trading cards altogether. Write an equation for the number of cards in each pack.	$8 * \underline{\quad} = 72$
3	Ninety-six game tokens are shared equally among 6 teams. Write an equation for the number of tokens each team gets.	$96 / 6 = \underline{\quad}$
4	A playlist has 34 songs. Some songs are added, and now it has 81 songs. Write an equation for the number of songs added.	$34 + \underline{\quad} = 81$
5	Seven identical mystery boxes hold 49 mini erasers altogether. Write an equation for the number of erasers in each box.	$7 * \underline{\quad} = 49$
6	A player begins with 63 energy points and spends some. The player has 25 points left. Write an equation for the points spent.	$63 - \underline{\quad} = 25$

PART 2 • APPLY IT

- $9 * \underline{\quad} = 117$ The unknown is the number of canned foods one friend brings. Nine equal groups make 117, so $9 * \underline{\quad} = 117$.
- $144 / 12 = \underline{\quad}$ The unknown is the number of coins for one level. Divide the total coins by 12 levels, so $144 / 12 = \underline{\quad}$.

CHALLENGE

$15 * \underline{\quad} = 135$; $135 / 15 = \underline{\quad}$. Both blanks mean the number of photos in each album. The first equation uses equal groups, and the second equation shares the total.

Accept equivalent one-operation equations when the blank represents the quantity named in the story. For example, $\underline{\quad} + 34 = 81$ and $81 - 34 = \underline{\quad}$ both correctly show the number of songs added.