BARTLETT [handwritten]

NAME   DATE   PERIOD

Unit 6, Lesson 6: Distinguishing between Two Types of Situations

terms: coefficient *> define these* *{ sum* [handwritten]
solution *product variable*

Let's think about equations with and without parentheses and the kinds of situations they describe.

5 minutes [handwritten]

6.1: Which One Doesn't Belong: Seeing Structure

Notice 1 that doesn't belong → why? [handwritten]

Which equation doesn't belong?

product of two expressions [handwritten]   *only one not equivalent to others* [handwritten]

$$4(x + 3) = 9$$ $$4 + 3x = 9$$

$$4 \cdot x + 12 = 9$$ $$9 = 12 + 4x$$

only one that uses · instead of next to for multiplication [handwritten]

only one with "solution" (single number) on L side [handwritten]

6.2: Categories of Equations Card Sort

15 mins. [handwritten]

Your teacher will give you a set of cards that show equations. <u>Sort the cards into 2 categories of your</u> choosing. Be prepared to explain the meaning of your categories. Then, sort the cards into 2 categories in a different way.

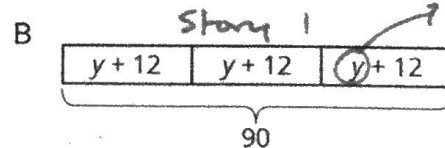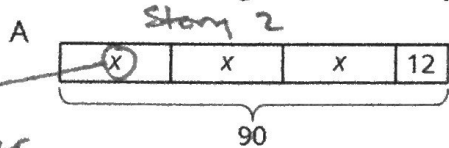Be prepared to explain the meaning of your new categories.

① Develop category [handwritten]
② Sort equations [handwritten]

$$px + q \quad vs. \quad p(x + q)$$ [handwritten]

6.3: Even More Situations, Diagrams, and Equations

15 mins. [handwritten]

# of flyers given to each volunteer [handwritten]

A *Story 2* [handwritten]
| (x) | x | x | 12 |

B *Story 1* [handwritten]
| y + 12 | y + 12 | (y)+ 12 |

Remaining # of flyers given to each volunteer (after giving 12 to start) [handwritten]

90   90

Story 1: Lin had 90 flyers to hang up around the school. She gave 12 flyers to each of three volunteers. Then she took the remaining flyers and divided them up equally between the three volunteers.

Diagram B — $3(y + 12) = 90$ or $3y + 36 = 90$ $y = 18$ [handwritten]

Story 2: Lin had 90 flyers to hang up around the school. After giving the same number of flyers to each of three volunteers, she had 12 left to hang up by herself.

Diagram A — $3x + 12 = 90$ $x = 26$ [handwritten]

1. Which diagram goes with which story? Be prepared to explain your reasoning.

2. In each diagram, what part of the story does the variable represent?

3. Write an equation corresponding to each story. If you get stuck, use the diagram.

4. Find the value of the variable in the story.

Equations are very similar — both have ·3 ·12 ·x ·multiplication [handwritten]
·variable ·90 ·addition [handwritten]
Q: How are they diff.? — are it the sum of a product+ other the number product of a number + sum [handwritten]

Lesson 6 Summary

In this unit, we encounter two main types of situations that can be represented with an equation. Here is an example of each type:

1. After adding 8 students to each of 6 same-sized teams, there were 72 students altogether.

2. After adding an 8-pound box of tennis rackets to a crate with 6 identical boxes of ping pong paddles, the crate weighed 72 pounds.

The first situation has all equal parts, since additions are made to *each* team. An equation that represents this situation is $6(x + 8) = 72$, where x represents the original number of students on each team. Eight students were added to each group, there are 6 groups, and there are a total of 72 students.

In the second situation, there are 6 equal parts added to one other part. An equation that represents this situation is $6x + 8 = 72$, where x represents the weight of a box of ping pong paddles, there are 6 boxes of ping pong paddles, there is an additional box that weighs 8 pounds, and the crate weighs 72 pounds altogether.

In the first situation, there were 6 equal groups, and 8 students added to each group. $6(x + 8) = 72$.

In the second situation, there were 6 equal groups, but 8 more pounds in addition to that. $6x + 8 = 72$.