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Types of Story Problems: Comparing

Parent Note

Earlier in this unit, students encountered two types of story problems: combining problems in which two quantities are combined to form a third quantity, and separating problems in which one quantity is removed from another, resulting in a portion of the original quantity.

Students are now introduced to a third type of story problem—comparing. In these problems, two quantities are compared to find the difference between them.

Chen has 12 marbles. John has 4. How many more marbles does Chen have than John? (Or how many fewer marbles does John have than Chen?)

The most familiar form of these problems is like this example: Two quantities are given, and the problem is to find the difference between them. However, comparing problems might also present one of the quantities and the difference:

Chen has 12 marbles. He has 8 more marbles than John. How many marbles does John have?

In this problem, one quantity is known (12 marbles), and the difference between the quantities is known (8 marbles). The problem requires finding a quantity that is 8 less than 12. Students often find comparison problems of this type more challenging than the first example because they must compare an unknown quantity with a known quantity. When students solve comparing problems of this type they may begin by choosing a number that might work, then adjust it until they achieve the required difference.

For example, consider problem 7 on Story Problems, Set H (p. 188):

> Jake and Kira each collected cans for recycling. Jake collected 48 cans in all. He collected 12 more than Kira. How many cans did Kira collect?

One student solved this problem by adding 12 to a number that was easy to manage.

Harris: I know 12 and 30 is 42. 12 and 31 is 43. I keep adding on: 12 + 32 is 44, 12 + 33 is 45, 12 + 34 is 46, 12 + 35 is 47, 12 + 36 is 48. So Kira had 36 cans.

While not an efficient method, Harris found a systematic strategy; he understands it and it works.