



Alignment 1: 3.OA.3

Grade 3

Domain OA: Operations and Algebraic Thinking

Cluster Represent and solve problems involving multiplication and division.

Standard Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

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- a. Sandra has 6 grandchildren, and she gave each of them \$9. How much money did she give to her grandchildren altogether?

- b. Nita gave each of her grandchildren \$8. If she gave a total of \$48, how many grandchildren does Nita have?

- c. Helen gave each of her 7 grandchildren an equal amount of money. If she gave a total of \$42, how much did each grandchild get?

Commentary:

The first of these is a multiplication problem involving equal-sized groups. The next two reflect the two related division problems, namely, "How many groups?" and "How many in each group?"

Sometimes the second type of problem is referred to as a measurement division or repeated subtraction problem. The third type of problem is sometimes called a partitive division or sharing problem. It asks how large is each share when a whole is divided equally into a specified number of pieces. It specifies the size of each share and asks how many of that size are in the whole. The language used in the solution reflects the language in the common core, which also refers to them "Number of Groups Unknown" or "Group Size Unknown," respectively.

Solution: Writing multiplication equations for division problems

- a. Sandra gave away 6 groups of \$9, which is $6 \times 9 = 54$ dollars all together.
b. Since the number of grandchildren represent the number of groups, but we don't know how many grandchildren there are, this is a "How many groups?" division problem. We can represent it as

$$? \times 8 = 48$$

or

$$48 \div 8 = ?$$

So Nita must have 6 grandchildren.

- c. Here we know how many grandchildren there are (so we know the number of groups), but we don't know how much money each one gets (the number of dollars in each group). So this is a "How many in each group?" division problem. We can represent it as

$$7 \times ? = 42$$

or

$$42 \div 7 = ?$$

So Helen must have given each grandchild \$

