

Grade 3: Water Balloons

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3.OA.A.3 - 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.

Vincent, Sara, and 2 more friends went to the park. Vincent brought 16 water balloons. Sara brought 16 water balloons. Nobody else brought water balloons. The 4 friends shared the water balloons equally. How many water balloons did each friend get?

Answer:

water balloons

Solution

Correct if student writes the number 8.

All together there were 32 water balloons ($16 + 16 = 32$). When 32 water balloons are shared equally among 4 people, each person gets 8 water balloons ($32 \div 4 = 8$ because $4 \times 8 = 32$).

This problem has several pieces of given information that have to be combined by adding, multiplying, and dividing as appropriate. To answer the problem correctly, the student will have to understand the quantities in the problem and apply his or her understanding of what the basic operations do.

The problem also requires calculation skills; for example, it isn't enough to decide to divide 32 by 8; the student also has to know the value of this quotient. If the student doesn't remember the answer to $32 \div 4$, ask "4 times what is 32?" If they don't remember $4 \times 8 = 32$, try asking if they remember 4×10 . If they remember $4 \times 10 = 40$, then they can conclude that $40 \div 4$ is 10. Since 32 is less than 40 by two groups of 4, that means $32 \div 4$ is two less than $40 \div 4$:

$$\begin{aligned} 32 \div 4 \\ = 40 \div 4 - 2 \\ = 10 - 2 \\ = 8. \end{aligned}$$

The solution given above combines the water balloons, then divides the total number of balloons by the total number of children. Because of the particular numbers in this problem, there are several other approaches your student might use for solving the problem:

- The 4 friends could share Vincent's 16 balloons and get 4 balloons each, and then share Sara's 16 balloons and get 4 more balloons each, for a total of 8 balloons each: $(16 \div 4) + (16 \div 4) = 4 + 4 = 8$.
- Vincent could share his 16 balloons with a friend (both of them get 8 balloons) while Sara shares her 16 balloons with the other friend (both of them get 8 balloons too). Everybody gets 8 balloons.

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