

7.NS Sharing Prize Money

Alignments to Content Standards: 7.NS.A.3

Task

The three seventh grade classes at Sunview Middle School collected the most boxtops for a school fundraiser, and so they won a \$600 prize to share among them. Mr. Aceves' class collected 3,760 box tops, Mrs. Baca's class collected 2,301, and Mr. Canyon's class collected 1,855. How should they divide the money so that each class gets the same fraction of the prize money as the fraction of the box tops that they collected?

IM Commentary

This task requires students to be able to reason abstractly about fraction multiplication as it would not be realistic for them to solve it using a visual fraction model. Even though the numbers are too messy to draw out an exact picture, this task still provides opportunities for students to reason about their computations to see if they make sense. A teacher might start out by asking questions like, "Which class should get the most prize money? Should Mr. Aceves' class get more or less than half of the money? Mr. Aceves' class collected about twice as many box tops as Mr. Canyon's class - does that mean that Mr. Aceves' class will get about twice as much prize money as Mr. Canyon's class?"

This task also represents an opportunity for students to engage in Standard for Mathematical Practice **5 Use appropriate tools strategically**. Fraction tasks in earlier grades (see 5.NF.6, for example) would be inappropriate to use a calculator with because the point of those tasks is to develop an understanding of the meaning of fraction multiplication and to practice some of those computations. Here, there is little benefit in students doing the computations by hand (few adults would), and so provides an opportunity to discuss the value of having a calculator and when it is (and

is not) appropriate to use it.

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Solution

All together, the students collected $3,760 + 2,301 + 1,855 = 7,916$ box tops.

Mr. Aceves' class collected $\frac{3760}{7916}$ of the box tops.

Mrs. Baca's class collected $\frac{2301}{7916}$ of the box tops.

Mr. Canyon's class collected $\frac{1855}{7916}$ of the box tops.

The amount for Mr. Aceves' class is $\frac{3760}{7916} \times 600 \approx 284.99$

The amount for Mrs. Baca's class is $\frac{2301}{7916} \times 600 \approx 174.41$

The amount for Mr. Canyon's class is $\frac{1855}{7916} \times 600 \approx 140.60$

So \$284.99 should go to Mr. Aceves' class, \$174.41 should go to Mrs. Baca's class, and \$140.60 should go to Mr. Canyon's class.

