Illustrative
Mathematics

6.RP Voting for Two, Variation 1

Alignments to Content Standards: 6.RP.A

Task

John and Will ran for 6th grade class president. There were 36 students voting. John got two votes for every vote Will got. How many votes did each get?

IM Commentary

This is the first and most basic problem in a series of seven problems, all set in the context of a classroom election. Every problem requires students to understand what ratios are and apply them in a context. The problems build in complexity and can be used to highlight the multiple ways that one can reason about a context involving ratios.

This first problem can be used to solidify students' understanding of ratio tables or can be used to highlight how one can use unit rates to reason in a ratio context as described in the solution below.

There are several ways students can solve this problem, and encouraging multiple solutions can lead to good connections between different mathematical ideas, as noted in the comment by sbingham67.

Solutions

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Solution: Using a ratio table

One approach is to use a ratio table that has a column for votes for Will, a column for votes for John , and a column for the total number of voters.

Votes for Will	Votes for John	Total number of votes
1	2	3
5	10	15
10	20	30
11	22	33
12	24	36

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Solution: Computing votes

There are multiple ways to approach this problem; here is one that uses the fact that the 2 to 1 ratio means there are three equal parts in this case.

One way to consider the votes in three equal parts is to determine the number of votes in each part. Since it is given that there are 36 votes, each part must then be $\frac{1}{3} \times 36 =$ 12 votes. It is also give that John has 2 parts and Will has 1 part. Therefore:

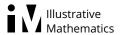$2 \times 12 = 24$ votes for John

$1 \times 12 = 12$ votes for Will

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Solution: Applying fractions

An alternate approach is to recognize that John gets 2/3 of the votes, Will gets 1/3 of the votes, and to work with the fractions rather than the number of votes.

$\frac{2}{3} \times 36 = 24$ votes for John

$\frac{1}{3} \times 36 = 12$ votes for Will

Solution: With connections to 6.EE.7

Students might also approach this algebraically, as noted in the comment by sbingham67:

The 2:1 ratio means for every 2 votes for John, Will gets 1. But we don't know how many groups of "2 votes to 1 vote" we have, so the ratio could also be represented as

$$2x : 1x$$

Where x is how many groups of each quantity in the ratio we have. If you put John's and Will's votes together, there are $3x$ votes all together. Since 36 students voted,

$$3x = 36$$

which is equivalent to the equation

$$x = \frac{36}{3}$$

so $x = 12$. Multiply x by 2 to get John's votes: $2 \times 12 = 24$.