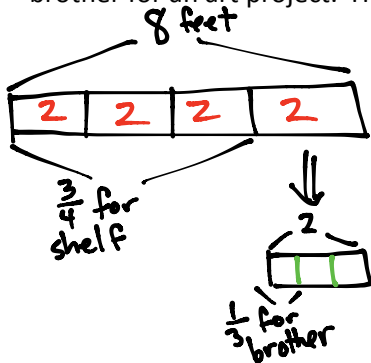Name _____          Date _____

Solve using tape diagrams.

1.  Anthony bought an 8-foot board. He cut off $\frac{3}{4}$ of the board to build a shelf, and gave $\frac{1}{3}$ of the rest to his brother for an art project. How many inches long was the piece Anthony gave to his brother?

8 feet

| 2 | 2 | 2 | 2 |

$\frac{3}{4}$ for shelf

2

$\frac{1}{3}$ for brother

$\frac{1}{3}$ of $2 = \frac{1}{3} \times 2$
$= \frac{1 \times 2}{3}$
$= \frac{2}{3}$

$\frac{2}{3}$ foot for brother

$\frac{2}{3}$ of foot $= \frac{2}{3} \times 12$ inches
$= \frac{2 \times 12^4}{1 \, 3}$
$= 8$ inches

{ 8 inches for brother }

2.  Riverside Elementary School is holding a school-wide election to choose a school color. Five-eighths of the votes were for blue, $\frac{5}{9}$ of the remaining votes were for green, and the remaining 48 votes were for red.
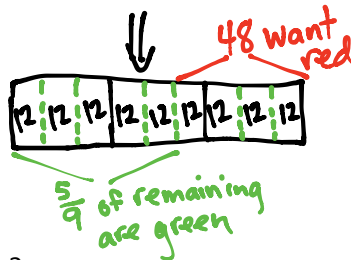
    a.  How many votes were for blue?

    blue

    | 36 | 36 | 36 | 36 | 36 | 36 | 36 | 36 |

    $\frac{5}{8}$

    48 want red

    | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 |

    $\frac{5}{9}$ of remaining are green
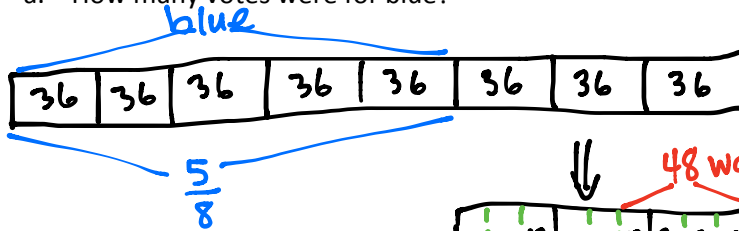
    4 small units = 48
    1 small unit = 48 ÷ 4 = 12

    3 small units = 1 big unit = 36

    blue is 5 big units :  $\begin{array}{r} 36 \\ \times \ 5 \\ \hline 180 \end{array}$ votes for blue

    { 180 votes for blue }

    b.  How many votes were for green?

    I small unit is 12 votes

    green is 5 small units

    $\begin{array}{r} 12 \\ \times \ 5 \\ \hline 60 \end{array}$ votes

    { 60 votes for green }

Lesson 16:   Solve word problems using tape diagrams and fraction-by-fraction multiplication.
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c. If every student got one vote, but there were 25 students absent on the day of the vote, how many students are there at Riverside Elementary School?
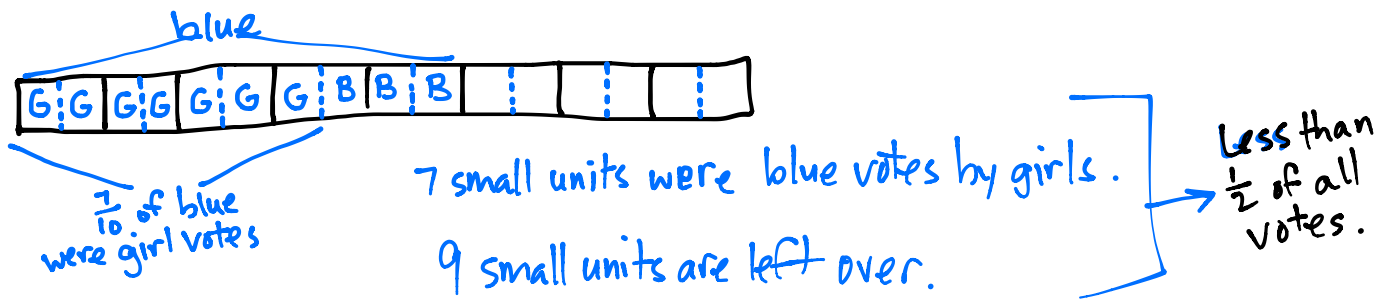
$$\begin{array}{r} 36 \\ \times\ 8 \\ \hline 288 \end{array}$$

288 total votes, but 25 are absent.

$$\begin{array}{r} 288 \\ +\ \ 25 \\ \hline 313 \end{array}$$

313 total students.

d. Seven-tenths of the votes for blue were made by girls. Did girls who voted for blue make up more than or less than half of all votes? Support your reasoning with a picture.



blue

G G G G G G G B B B

$\frac{7}{10}$ of blue were girl votes

7 small units were blue votes by girls.

9 small units are left over.

Less than $\frac{1}{2}$ of all votes.

e. How many girls voted for blue?

$$\frac{7}{10} \text{ of } 180 = \frac{7}{10} \times 180$$
$$= \frac{7 \times 180^{18}}{10_{1}}$$
$$= 126$$

126 girls voted for blue.

This is less than half of all votes.

**Lesson 16:** Solve word problems using tape diagrams and fraction-by-fraction multiplication.

**Date:** 11/10/13

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