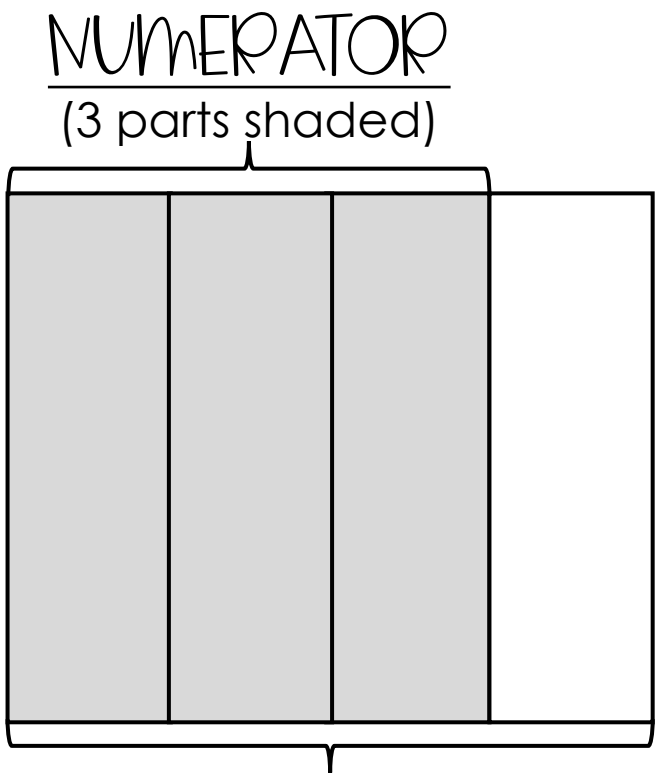
FRACTION VOCABULARY

$\frac{3}{4}$

NUMERATOR
(number of parts shaded or counted in the whole)

FRACTION BAR

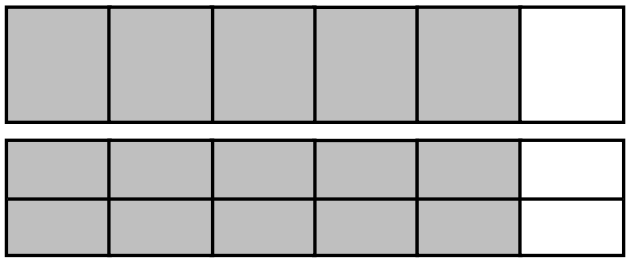
DENOMINATOR
(total number of parts in one whole)



5.NF.A.1

EQUIVALENT FRACTIONS

Example:

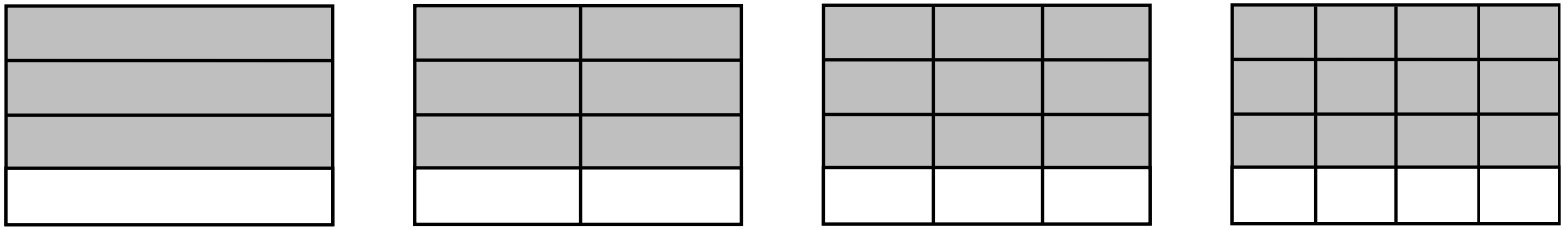


$\frac{5}{6}$

$\frac{10}{12}$

$\frac{5}{6}$ is equivalent to $\frac{10}{12}$

Fractions that have different numerators and denominators but represent the same value.

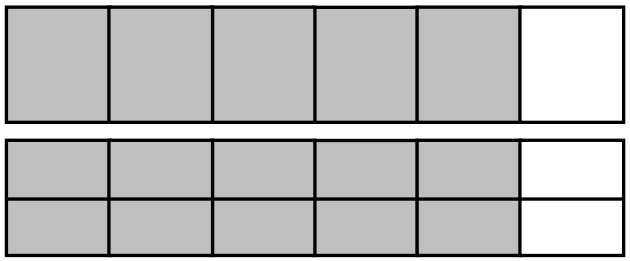


$\frac{3}{4} = \frac{6}{8} = \frac{9}{12} = \frac{12}{16}$

5.NF.A.1

EQUIVALENT FRACTIONS

Example:

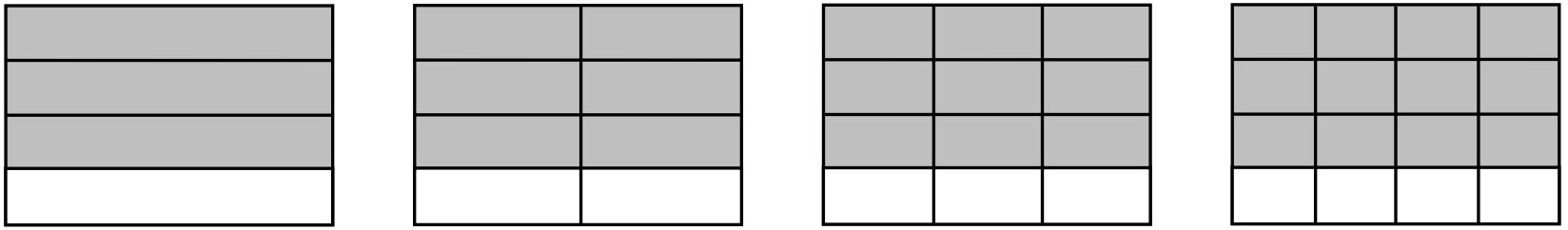


$\frac{5}{6}$

$\frac{10}{12}$

$\frac{5}{6} \times \frac{2}{2} = \frac{10}{12}$

Fractions that have different numerators and denominators but represent the same value.

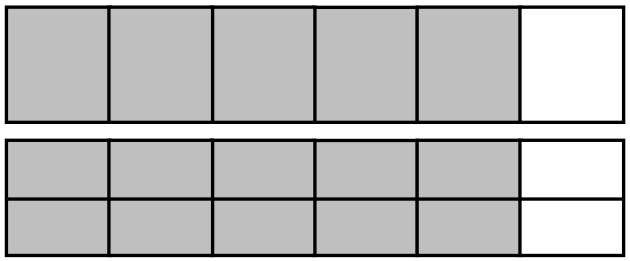


$\frac{3}{4} = \frac{3}{4} \times \frac{2}{2} = \frac{6}{8} = \frac{3}{4} \times \frac{3}{3} = \frac{9}{12} = \frac{3}{4} \times \frac{4}{4} = \frac{12}{16}$

5.NF.A.1

EQUIVALENT FRACTIONS

Example:

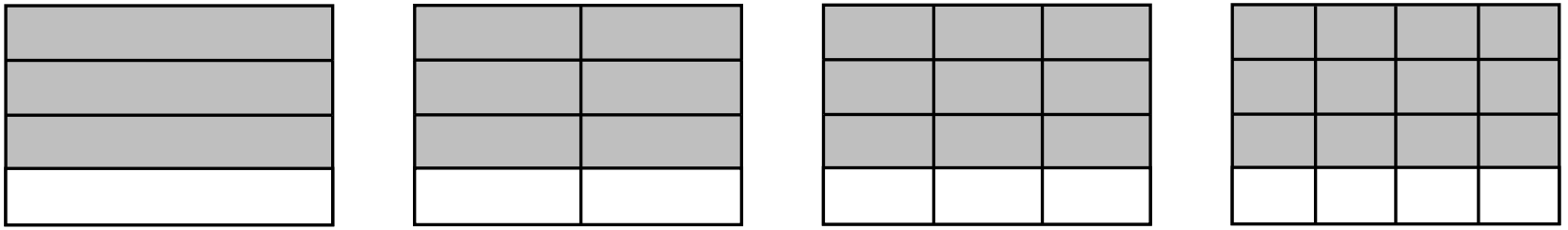


$\frac{5}{6}$

$\frac{10}{12}$

$\frac{10}{12} \div \frac{2}{2} = \frac{5}{6}$

Fractions that have different numerators and denominators but represent the same value.



$\frac{3}{4} = \frac{6}{8} \div \frac{2}{2} = \frac{3}{4} = \frac{3}{4} \div \frac{3}{3} = \frac{9}{12} = \frac{3}{4} \div \frac{4}{4} = \frac{12}{16}$

5.NF.A.1

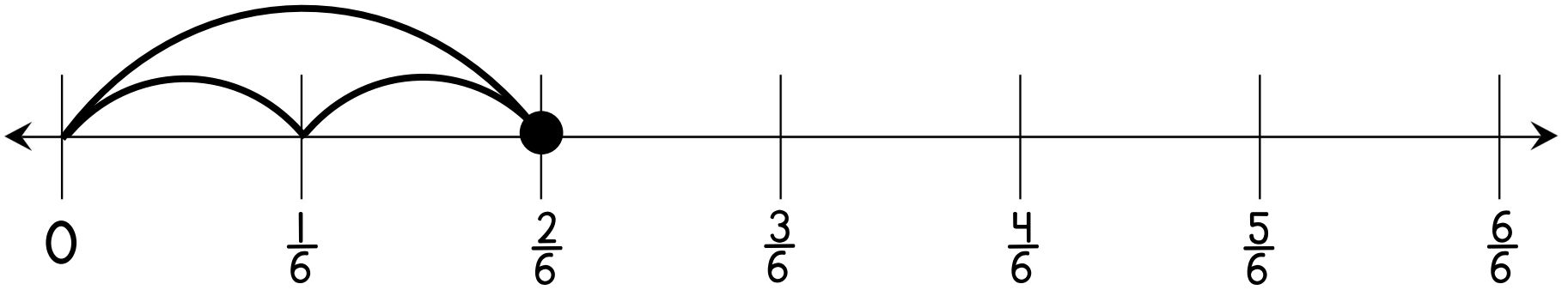
EQUIVALENT FRACTIONS

ON A NUMBER LINE

$\frac{1}{3} \times \frac{2}{2} = \frac{2}{6}$

$\frac{2}{6} \div \frac{2}{2} = \frac{1}{3}$

$\frac{1}{3} = \frac{2}{6}$



5.NF.A.1

ADDING FRACTIONS WITH A MONEY MODEL

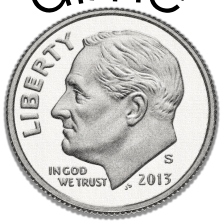
penny

$\frac{1}{100}$

nickel

$\frac{1}{20}$

dime



$\frac{1}{10}$

quarter

$\frac{1}{4}$

half-dollar

$\frac{1}{2}$

dollar

$\frac{1}{1}$

$\frac{1}{2} + \frac{3}{10} =$

$0.50 + $0.30

$= \$0.80 = \frac{80}{100} = \frac{8}{10} = \frac{4}{5}$

5.NF.A.1

SUBTRACTING FRACTIONS WITH A MONEY MODEL

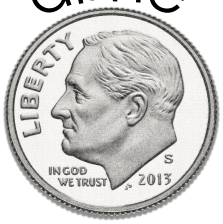
penny

$\frac{1}{100}$

nickel

$\frac{1}{20}$

dime



$\frac{1}{10}$

quarter

$\frac{1}{4}$

half-dollar

$\frac{1}{2}$

dollar

$\frac{1}{1}$

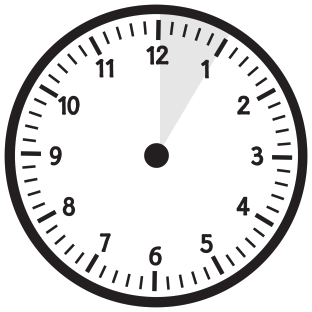
$\frac{3}{4} - \frac{3}{10} =$

$0.75 − $0.30

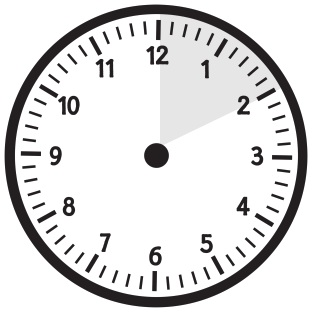
$= \$0.45 = \frac{45}{100} = \frac{9}{20}$

5.NF.A.1

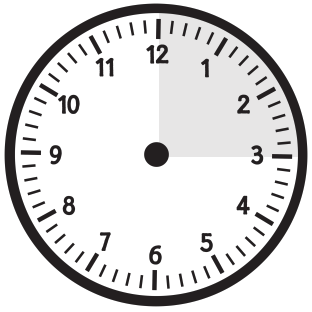
ADDING FRACTIONS WITH A CLOCK MODEL



$\frac{1}{12}$

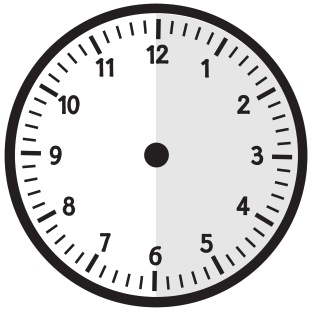


$\frac{1}{6}$

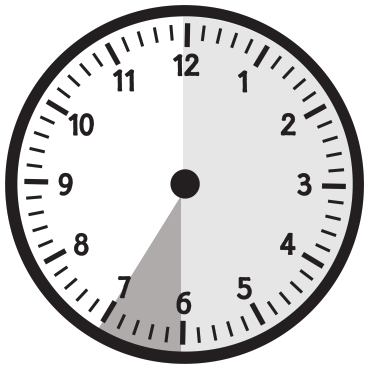


$\frac{1}{4}$

$\frac{1}{3}$

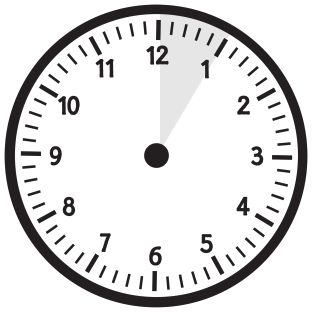


$\frac{1}{2}$

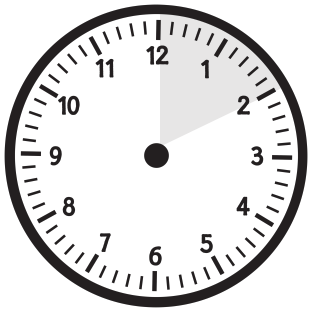
$\frac{1}{2} + \frac{1}{12} =$  $= \frac{7}{12}$

5.NF.A.1

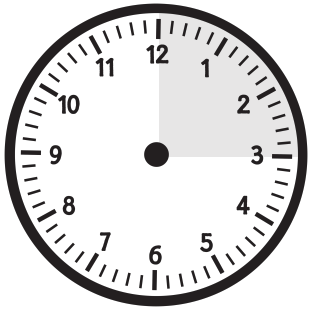
SUBTRACTING FRACTIONS WITH A CLOCK MODEL



$\frac{1}{12}$

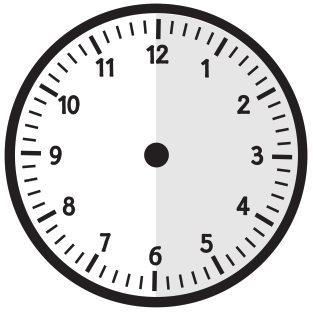


$\frac{1}{6}$

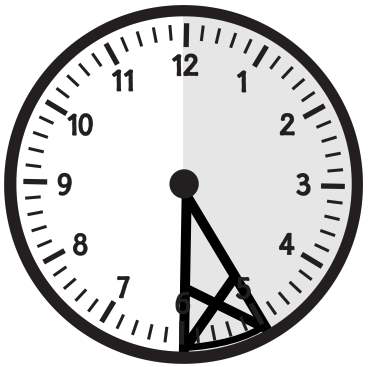


$\frac{1}{4}$

$\frac{1}{3}$



$\frac{1}{2}$

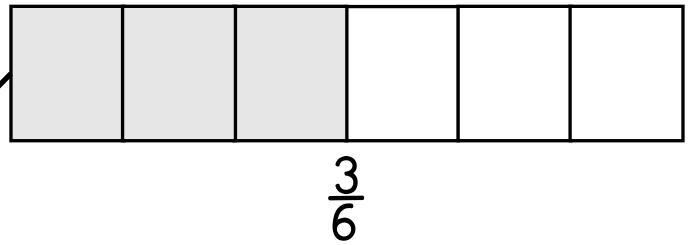
$\frac{1}{2} - \frac{1}{12} =$  $= \frac{5}{12}$

5.NF.A.1

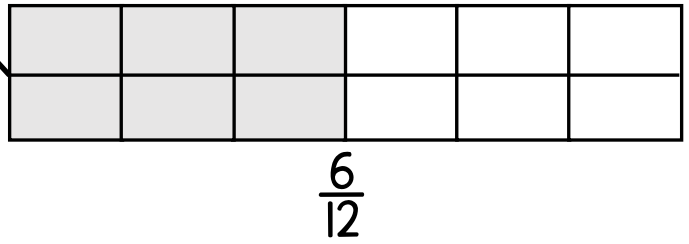
ADDING FRACTIONS WITH UNLIKE DENOMINATORS

(Remember to create **common denominators** before adding fractions.)

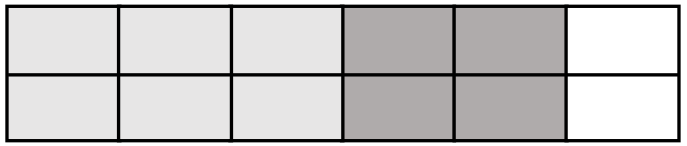
$\frac{3}{6}$ is equivalent to $\frac{6}{12}$.



$\frac{3}{6}$ + $\frac{4}{12}$



$\frac{6}{12}$ + $\frac{4}{12}$



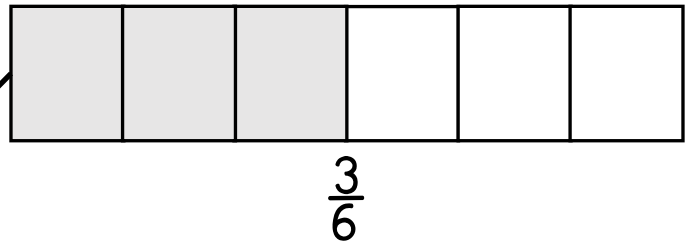
$\frac{6}{12} + \frac{4}{12} = \frac{10}{12} = \frac{5}{6}$

5.NF.A.1

SUBTRACTING FRACTIONS WITH UNLIKE DENOMINATORS

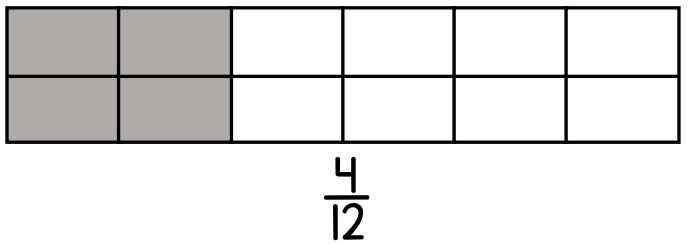
(Remember to create **common denominators** before adding fractions.)

$\frac{3}{6}$ is equivalent to $\frac{6}{12}$.

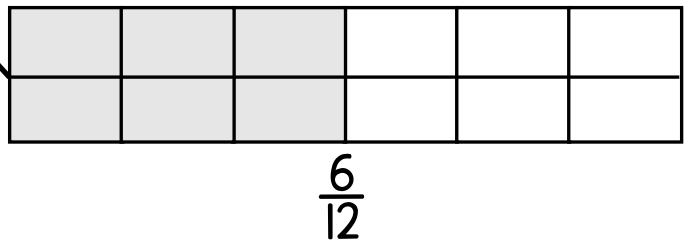


$\frac{3}{6}$

$-$

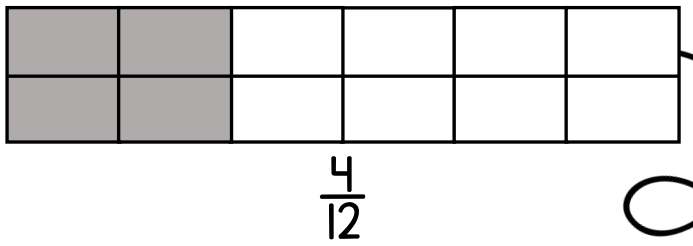


$\frac{4}{12}$

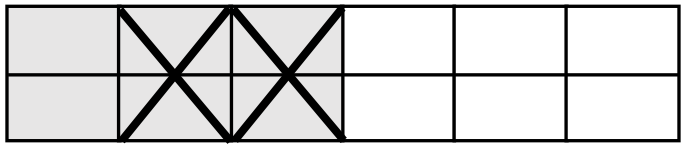


$\frac{6}{12}$

$-$



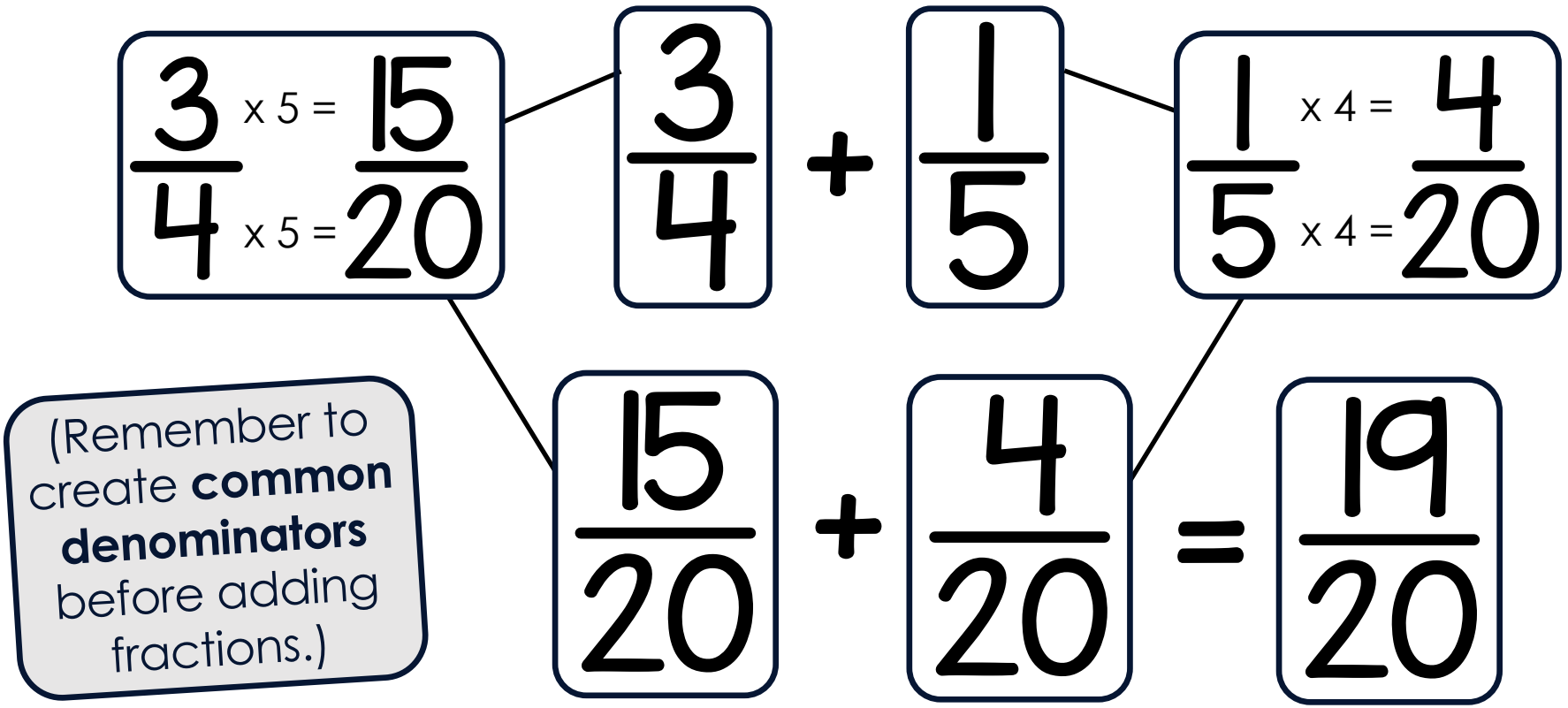
$\frac{4}{12}$



$\frac{6}{12} - \frac{4}{12} = \frac{2}{12} = \frac{1}{6}$

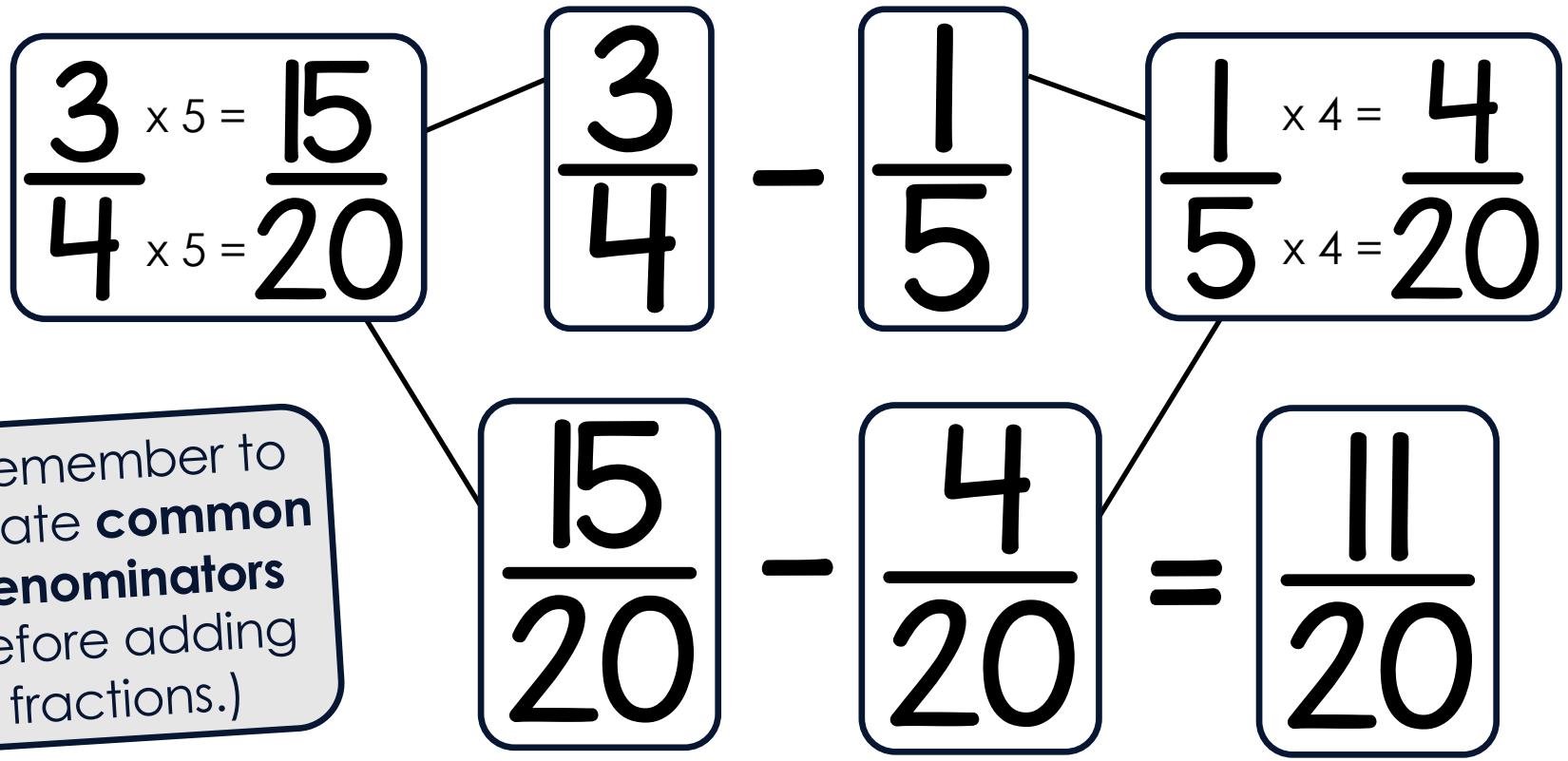
ADDING FRACTIONS

WITH UNLIKE DENOMINATORS



5.NF.A.1

SUBTRACTING FRACTIONS WITH UNLIKE DENOMINATORS



(Remember to create **common denominators** before adding fractions.)

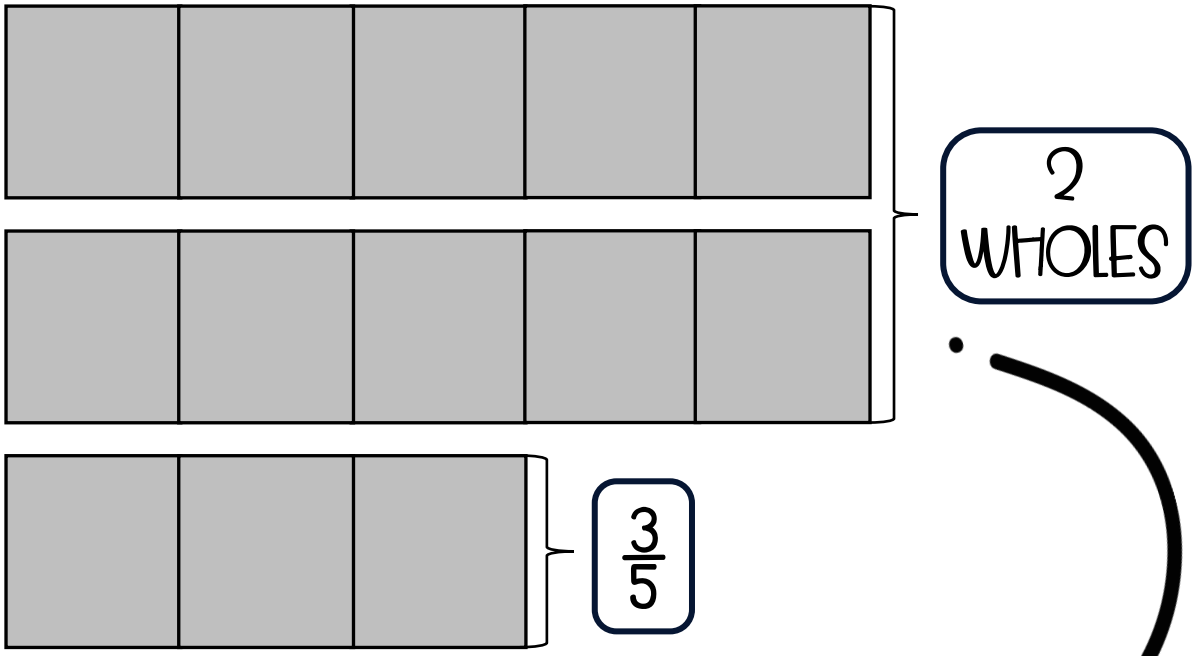
5.NF.A.1

MIXED NUMBER

$2\frac{3}{5}$

WHOLE NUMBER

FRACTION

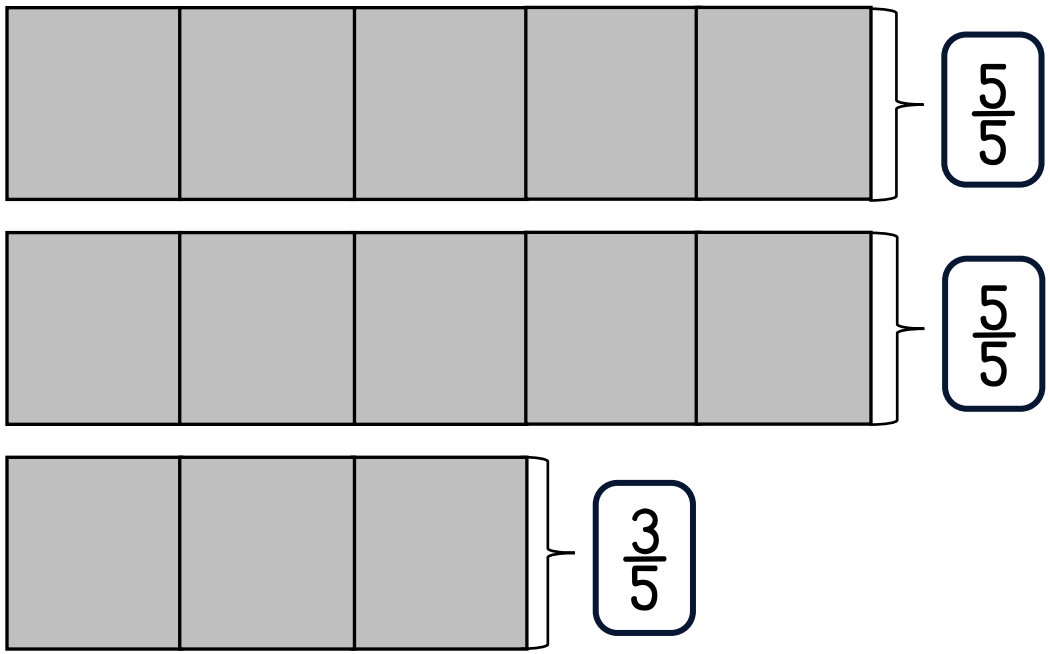


5.NF.A.1

IMPROPER FRACTION

A fraction where the numerator is greater than the denominator, representing more than one whole

$\frac{13}{5}$



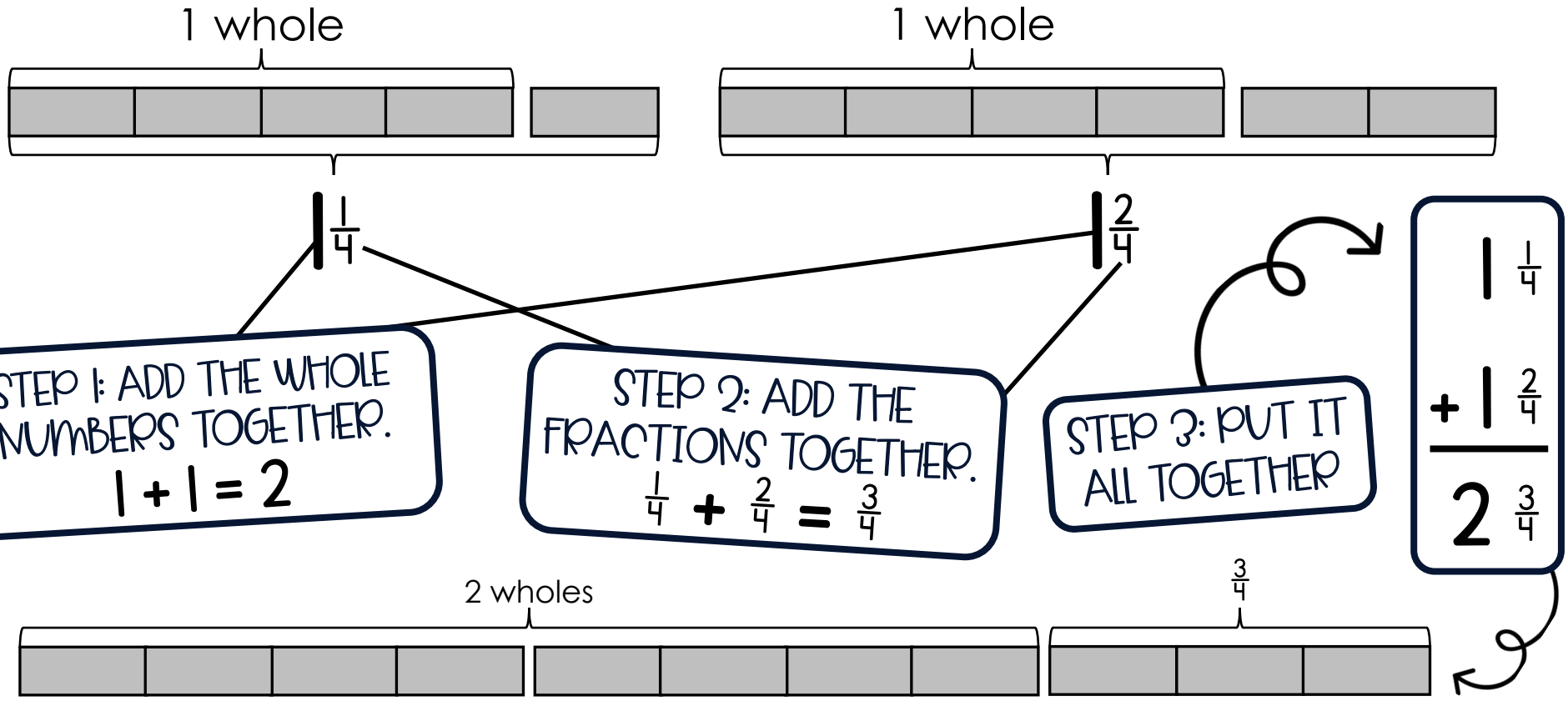
$\frac{5}{5} + \frac{5}{5} + \frac{3}{5} = \frac{13}{5} = 2\frac{3}{5}$

5.NF.A.1

5.NF.A.1

ADDING MIXED NUMBERS

WITH LIKE DENOMINATORS



5.NF.A.1

ADDING MIXED NUMBERS

WITH LIKE DENOMINATORS

$1\frac{3}{5} + 2\frac{4}{5} = 3\frac{7}{5} = 4\frac{2}{5}$

STEP 1: ADD THE WHOLE NUMBERS TOGETHER.
$1 + 2 = 3$

STEP 2: ADD THE FRACTIONS TOGETHER.
$\frac{3}{5} + \frac{4}{5} = \frac{7}{5}$

STEP 3: IF YOU HAVE AN IMPROPER FRACTION, CONVERT IT INTO A MIXED NUMBER.

STEP 4: PUT IT ALL TOGETHER

$$1\frac{3}{5} + 2\frac{4}{5} = 3\frac{7}{5} = 1\frac{2}{5} + 3 = 4\frac{2}{5}$$

5.NF.A.1

ADDING MIXED NUMBERS

WITH UNLIKE DENOMINATORS

$3\frac{3}{4} + 1\frac{1}{5}$

$3\frac{3}{4} \times 5 = 3\frac{15}{20}$

$1\frac{1}{5} \times 4 = 1\frac{4}{20}$

$3\frac{15}{20} + 1\frac{4}{20} = 4\frac{19}{20}$

(Remember to create **common denominators** before adding fractions.)

5.NF.A.1

SUBTRACTING MIXED NUMBERS

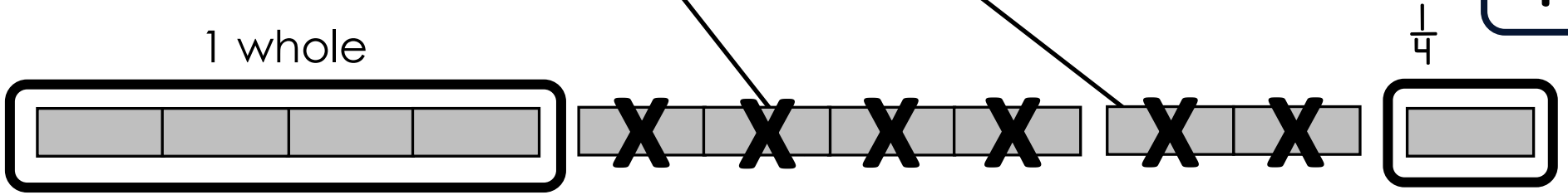
WITH LIKE DENOMINATORS

STEP 1: SUBTRACT THE WHOLE NUMBERS.
$2 - 1 = 1$

STEP 2: SUBTRACT THE FRACTIONS.
$\frac{3}{4} - \frac{2}{4} = \frac{1}{4}$

STEP 3: PUT IT ALL TOGETHER

$$\begin{array}{r} 2\ \frac{3}{4} \\ -1\ \frac{2}{4} \\ \hline 1\ \frac{1}{4} \end{array}$$



5.NF.A.1

SUBTRACTING MIXED NUMBERS WITH REGROUPING

$$4\frac{2}{5} - 2\frac{4}{5}$$

$\frac{4}{5} > \frac{2}{5}$ so we need to regroup.

$$3\cancel{4}\frac{2}{5} + \frac{5}{5} = \frac{7}{5}$$

$$3\frac{7}{5} - 2\frac{4}{5} = 1\frac{3}{5}$$

Take 1 whole from 4, convert it to a fraction, $\frac{5}{5}$, and add it to the existing fraction, $\frac{2}{5}$.

(To regroup mixed numbers, convert the whole number into a fraction representing the same whole.)

Subtract fraction from fraction and whole number from whole number.

5.NF.A.1

SUBTRACTING MIXED NUMBERS

WITH UNLIKE DENOMINATORS

$3\frac{3}{4} - 1\frac{1}{5}$

$3\frac{3}{4} \times 5 = 3\frac{15}{20}$

$1\frac{1}{5} \times 4 = 1\frac{4}{20}$

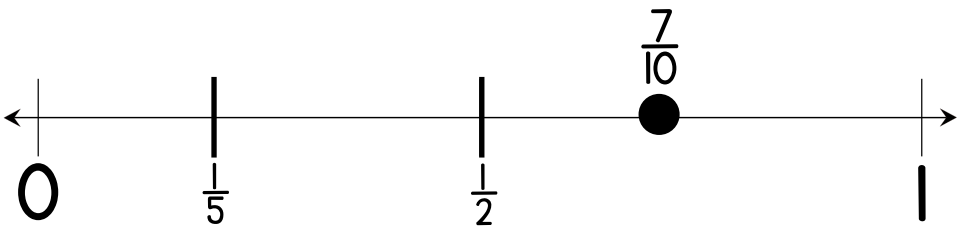
(Remember to create **common denominators** before adding fractions.)

$3\frac{15}{20} - 1\frac{4}{20} = 2\frac{11}{20}$

FRACTIONAL REASONING

REASONABLE

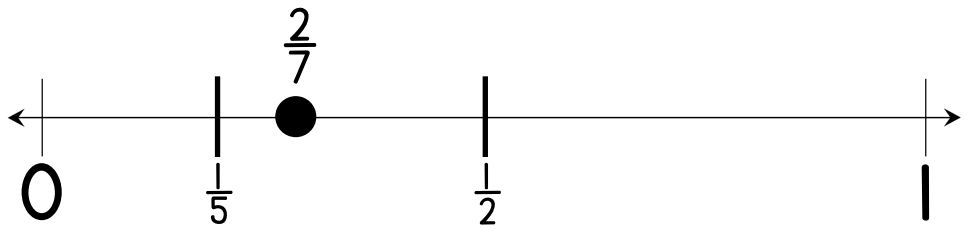
$$\frac{1}{5} + \frac{1}{2} = \frac{7}{10}$$



This is reasonable because the sum is more than both addends.

UNREASONABLE

$$\frac{1}{5} + \frac{1}{2} = \frac{2}{7}$$



This is unreasonable because the sum is less than one of the addends.

Use benchmark numbers to estimate mentally and assess the reasonableness of answers.

5.NF.A.2

INTERPRETING FRACTIONS AS DIVISION EXPRESSIONS

$\frac{3}{4}$

can be read as "divided by"

$3 \div 4$

$\frac{a}{b} = a \div b$

When 3 wholes are shared equally among 4 people, each person has a share of $\frac{3}{4}$.

$\frac{3}{4} \times 4$ people $= 3$ wholes

5.NF.B.3

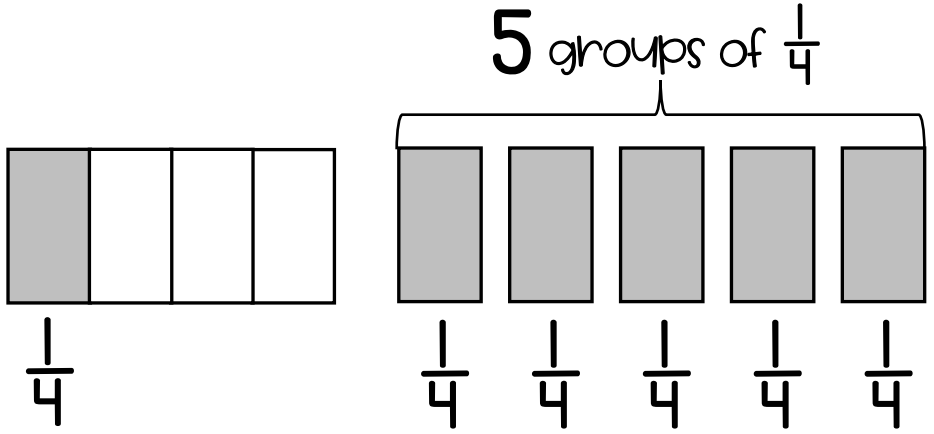
5.NF.B.4

MULTIPLYING FRACTIONS

BY A WHOLE NUMBER

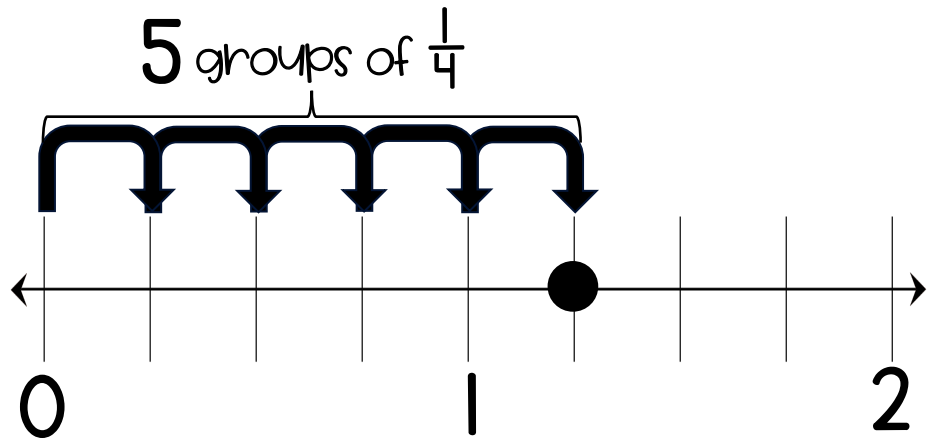
MULTIPLYING WITH MODELS

$$5 \times \frac{1}{4} = \frac{5}{4} = 1\frac{1}{4}$$



MULTIPLYING WITH NUMBER LINES

$$5 \times \frac{1}{4} = \frac{5}{4} = 1\frac{1}{4}$$



(The denominators stay the same because the size of the pieces stays the same.)

5.NF.B.4

MULTIPLYING FRACTIONS

BY A WHOLE NUMBER

algorithm:

"5 wholes"

$$5 \times \frac{1}{4} = \frac{5}{4} = 1\frac{1}{4}$$

$$\frac{5}{1} \times \frac{1}{4} = \frac{5}{4} = 1\frac{1}{4}$$

multiply numerator by numerator

multiply denominator by denominator

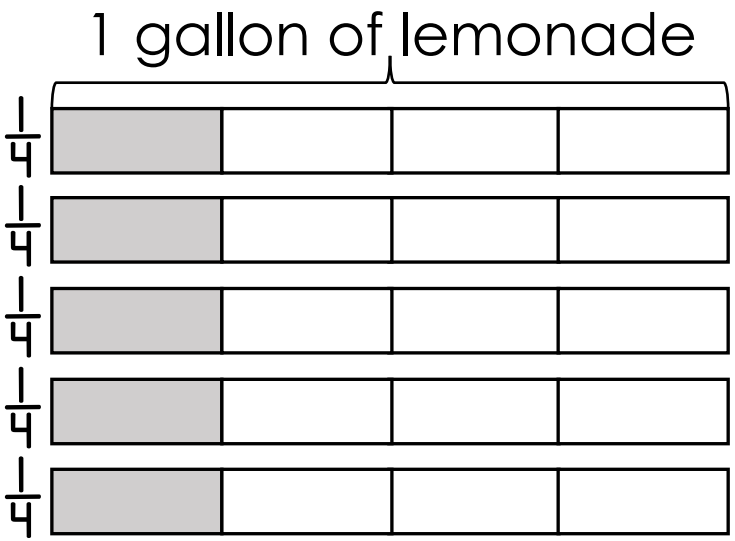
Turn the whole number into a fraction to multiply.

(The denominators stay the same because the size of the pieces stays the same.)

5.NF.B.4

MULTIPLYING FRACTIONS BY A WHOLE NUMBER

Milan made 5 gallons of lemonade. One-fourth of the lemonade was lemon juice. How much lemon juice did she use in the lemonade?



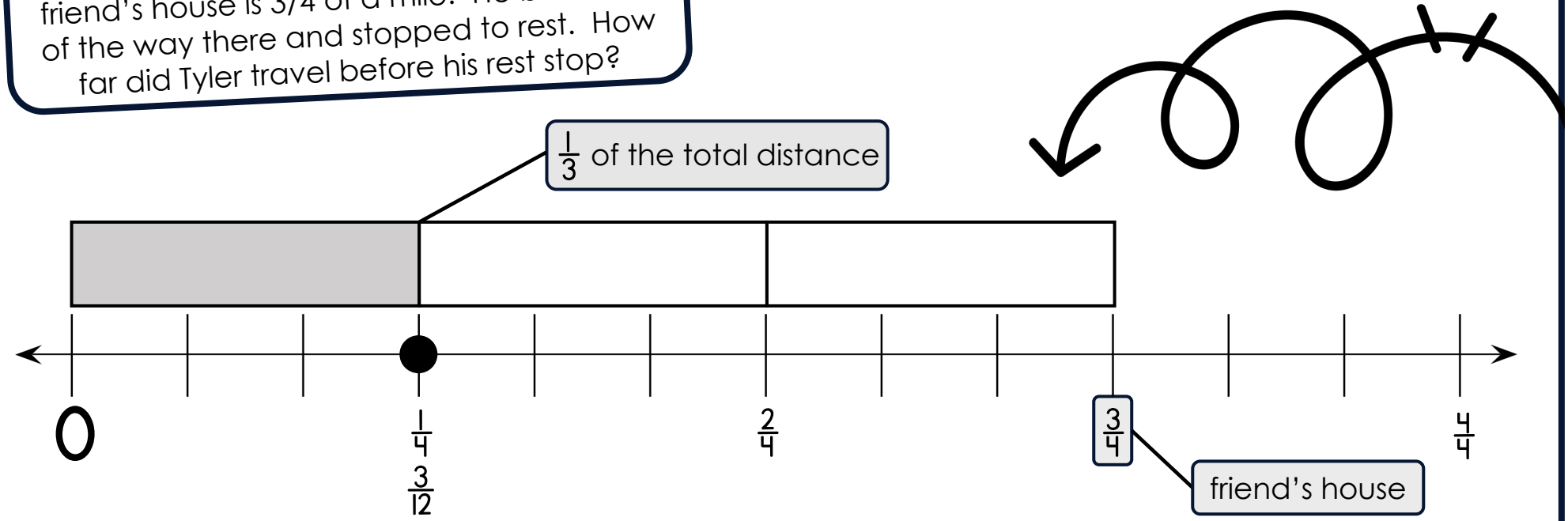
5 gallons of lemonade times one-fourth equals one whole and one-fourth.

$= 5 \times \frac{1}{4} = \frac{5}{4} = 1\frac{1}{4}$ gallons of lemon juice

5.NF.B.4

MULTIPLYING FRACTIONS BY ANOTHER FRACTION

The distance between Tyler's house to his friend's house is 3/4 of a mile. He biked 1/3 of the way there and stopped to rest. How far did Tyler travel before his rest stop?

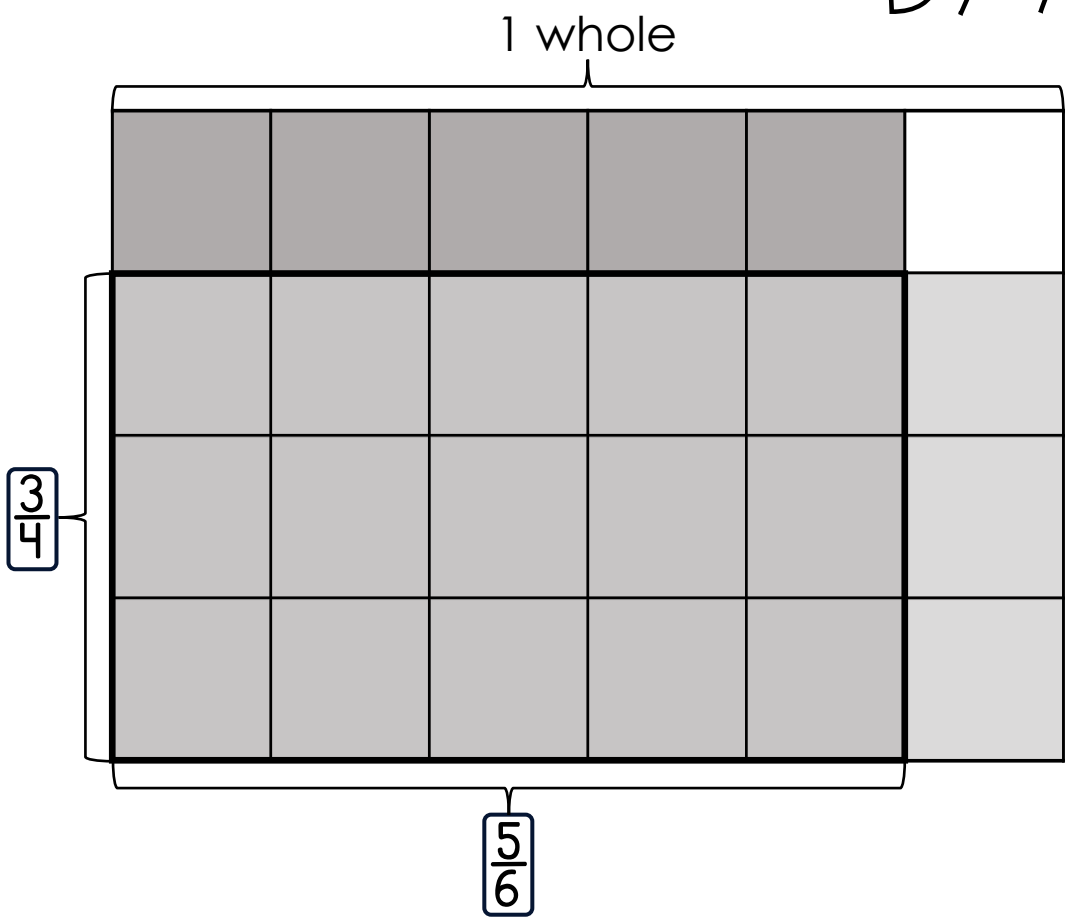


One-third of a mile times three-fourths of a mile equals three-twelfths , or one-fourth, of a mile.

$$\frac{1}{3} \times \frac{3}{4} = \frac{3}{12} = \frac{1}{4} \text{ mile}$$

5.NF.B.4

MULTIPLYING FRACTIONS BY ANOTHER FRACTION



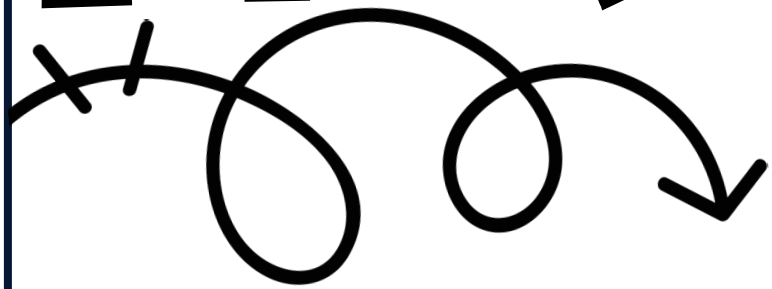
$\frac{3}{4}$ of $\frac{5}{6}$ is $\frac{15}{24}$

$\frac{3}{4} \times \frac{5}{6} = \frac{15}{24}$

5.NF.B.4

MULTIPLYING FRACTIONS

BY ANOTHER FRACTION



$$\frac{3}{4} \times \frac{5}{6} = \frac{15}{24}$$

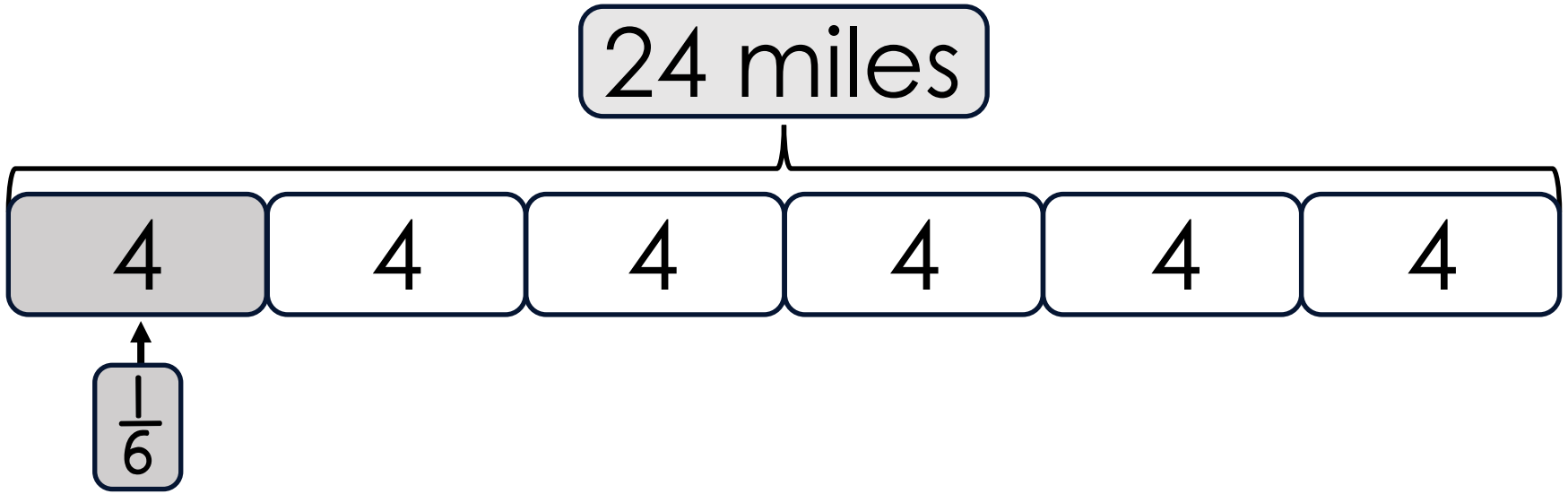
(numerator x numerator)

(denominator x denominator)

FRACTIONS

OF A WHOLE NUMBER

Tess and Xavier were on a 24-mile bike ride. One-sixth of the way through the ride, they stopped for a water break. How many miles had they ridden when they took the break?



$\frac{1}{6}$ of $24 = 4$ miles

$\frac{1}{6} \times \frac{24}{1} = \frac{24}{6} = \frac{4}{1} = 4$ miles

5.NF.B.4

5.NF.B.5

INTERPRETING MULTIPLICATION AS SCALING

X LESS THAN ONE	X EQUAL TO ONE	X MORE THAN ONE
The answer will always be less than the starting factor.	The answer will always be equal to the starting factor.	The answer will always be more than the starting factor.
$3 \times \frac{4}{6} = \underline{2}$	$3 \times \frac{4}{4} = \underline{3}$	$3 \times \frac{8}{4} = \underline{\frac{24}{4}}$
$\frac{3}{5} \times \frac{4}{6} = \underline{\frac{12}{30}}$	$\frac{3}{5} \times \frac{4}{4} = \underline{\frac{3}{5}}$	$\frac{3}{5} \times \frac{8}{4} = \underline{\frac{24}{20}}$

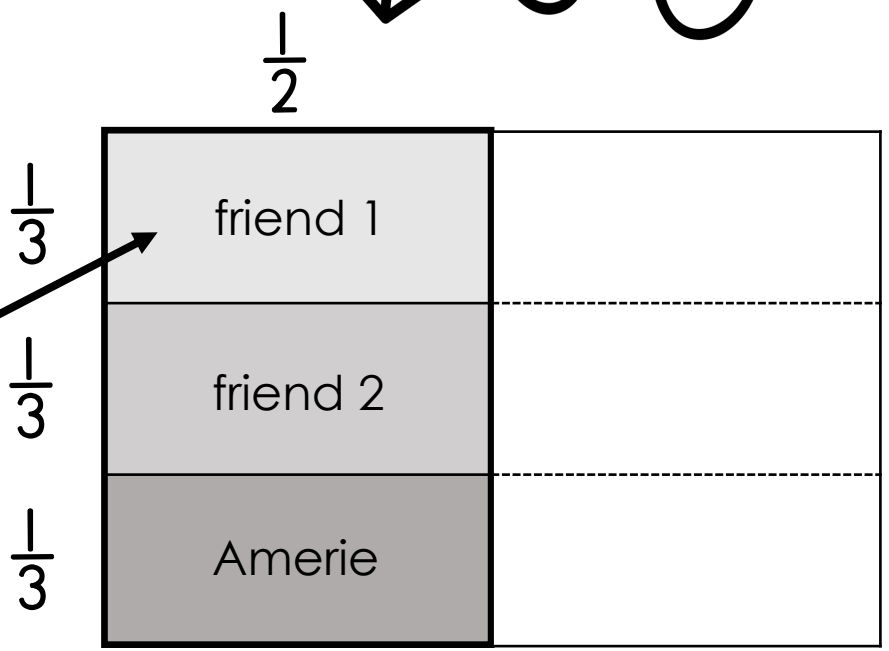
5.NF.B.7

DIVIDING FRACTIONS BY A WHOLE NUMBER

Amerie has 1/2 lb. of chocolate chips. She wants to share the chocolate chips equally between 2 friends and herself. How much should each friend's share weigh?

$\frac{1}{2}$ lb. of chocolate chips $\div 3$ people

Each friend gets $\frac{1}{6}$ of one pound.



5.NF.B.7

DIVIDING FRACTIONS BY A WHOLE NUMBER

Amerie has 1/2 lb. of chocolate chips. She wants to share the chocolate chips equally between 2 friends and herself. How much should each friend's share weigh?

$\frac{1}{2}$ lb. of chocolate chips $\div 3$ people $= \frac{1}{6}$ lb. per person

because

$3 \times \frac{1}{6} = \frac{1}{2}$

Each friend gets $\frac{1}{6}$ of one pound.

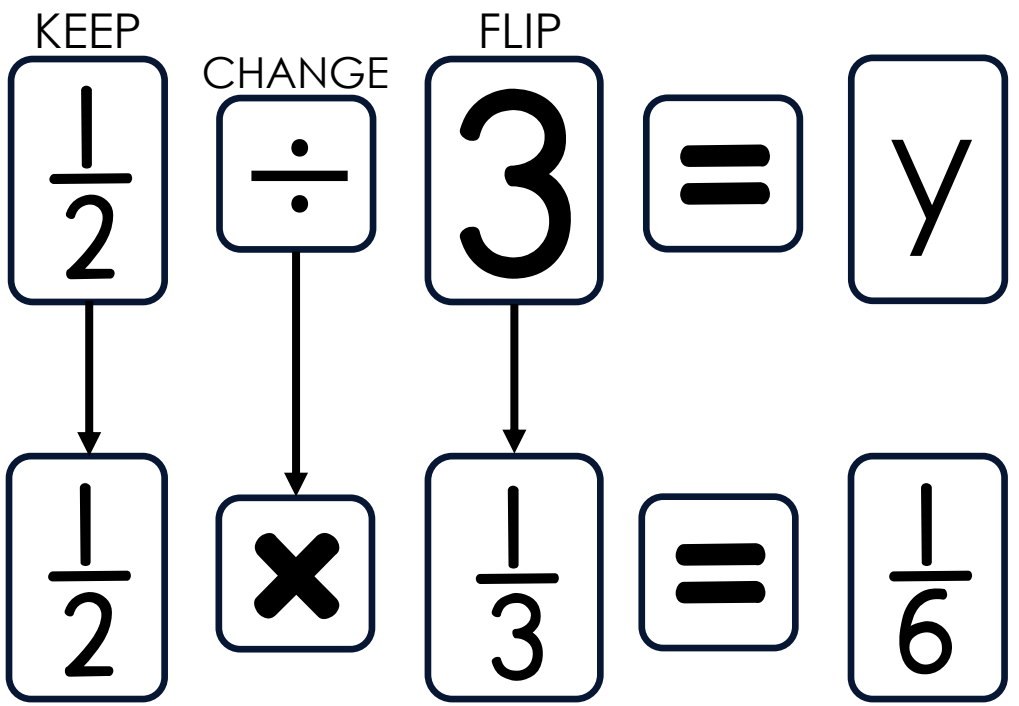
5.NF.B.7

DIVIDING FRACTIONS BY A WHOLE NUMBER

KEEP the first factor the same

CHANGE ÷ to x

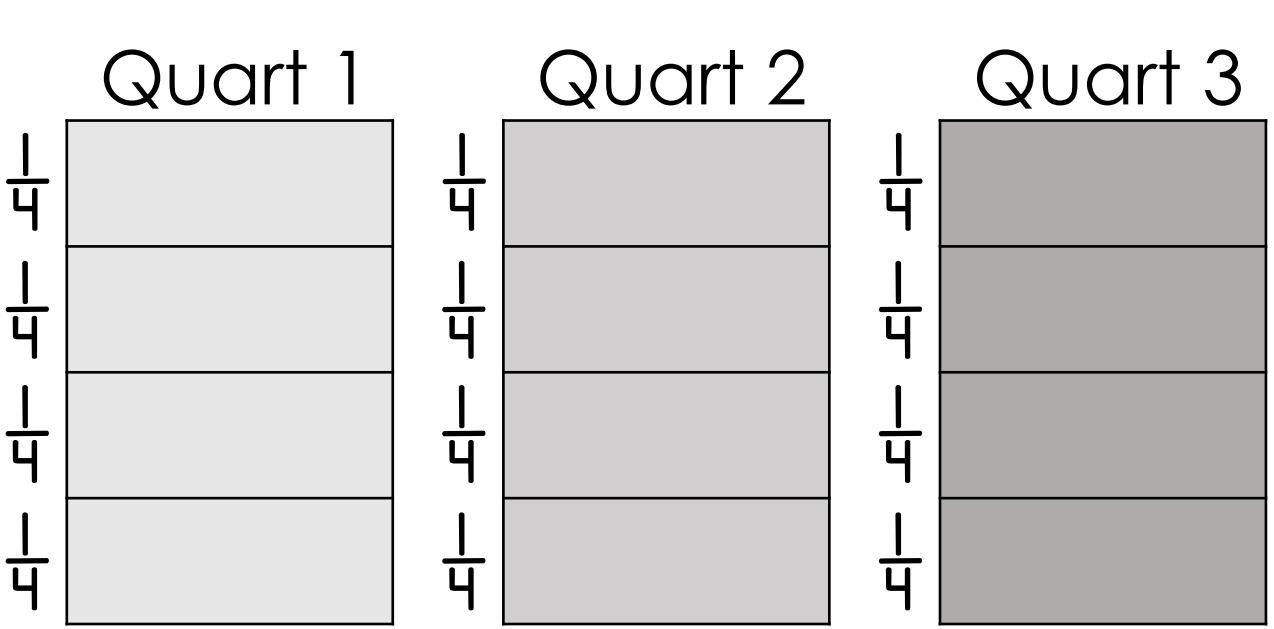
FLIP the second factor



DIVIDING WHOLE NUMBERS BY FRACTIONS

Jayce has 3 quarts of fruit punch. Each cup holds $\frac{1}{4}$ of a quart. How many cups can he fill?

3 quarts of fruit punch $\div$ $\frac{1}{4}$ quart per cup

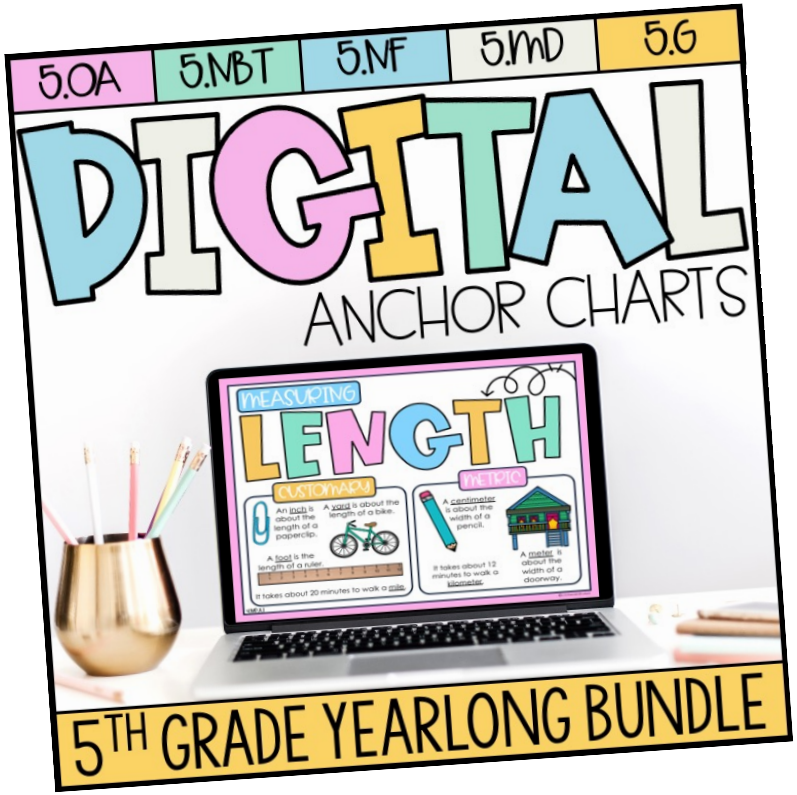


Jayce can fill 12 cups.

5.NF.B.7

THANK YOU!

I know you have MANY options when purchasing resources for your classroom, and I'm so thankful you've chosen mine! I am incredibly grateful for you and so happy to be part of your classroom!



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