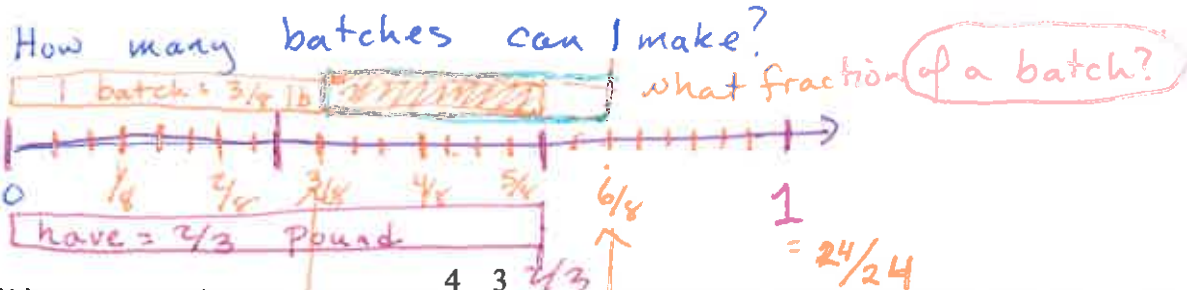Division of fractions problems:

1. Write a measurement division problem for $\frac{2}{3} \div \frac{3}{8}$. Draw a double number line diagram to solve the problem.

I have $\frac{2}{3}$ of a ___pound/cup___ of (sugar) candy

It takes $\frac{3}{8}$ of a _____ of _____ to make a batch of...

How many batches can I make? what fraction of a batch?

| 1 batch = 3/8 lb |

0   1/8   2/8   3/8   4/8   5/8   6/8   1
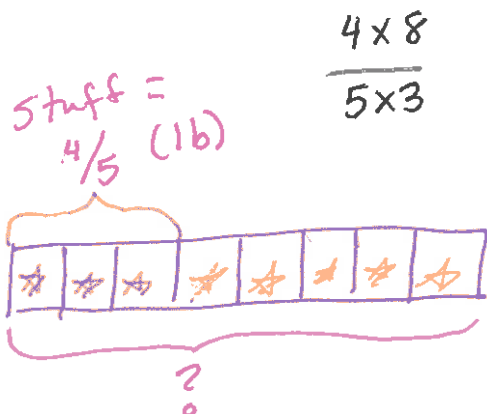
have = 2/3 Pound   = 24/24

2/3

2 batches

1 batch

2. Write a partition division problem for $\frac{4}{5} \div \frac{3}{8}$. Draw a bar diagram (tape diagram) to solve the problem.

I have $\frac{4}{5}$ lb of sugar. It makes $\frac{3}{8}$ batch of candy.

How much sugar in 1 batch of candy

3. Use the bar diagram to explain why $\frac{4}{5} \div \frac{3}{8}$ tells you the answer.

$$\frac{4 \times 8}{5 \times 3}$$

stuff = 4/5 (lb)

?
0

$\frac{4}{5} \div \left(\frac{3}{8}\right) = \frac{\text{size of}}{1 \text{ Whole}}$?

stuff I have   fraction of a set

* amt in 1 part

$\frac{4}{5} \times \frac{1}{3} \times \frac{8}{1} = \frac{4 \times 8}{5 \times 3}$
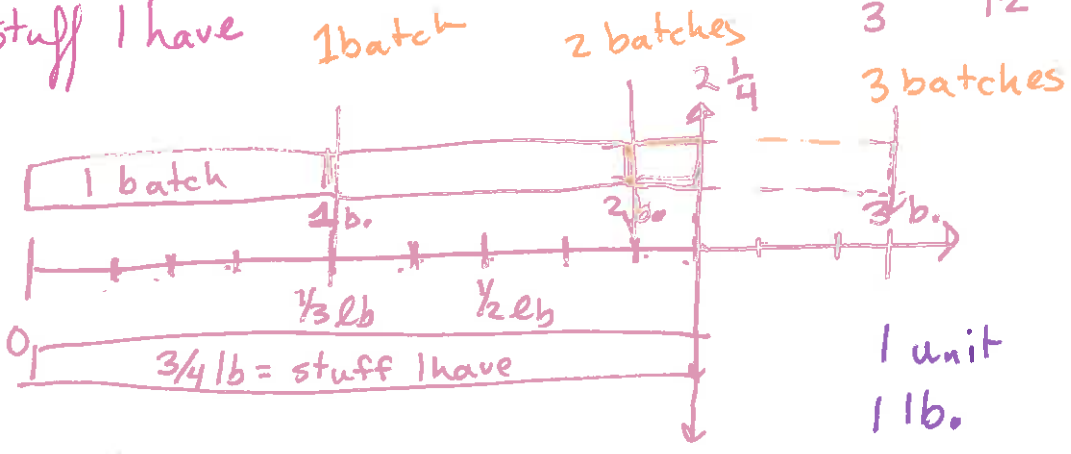
$\frac{1}{3}$ of my stuff   parts in 1 whole

lbs   lbs

$$\frac{3}{4} \div \frac{1}{3} = 2\frac{1}{4} \text{ batches.}$$

stuff in a batch/
box/bag.

$$\frac{3}{4} = \frac{9}{12}$$

$$\frac{1}{3} = \frac{4}{12}$$

stuff I have

1 batch   2 batches $2\frac{1}{4}$ 3 batches

1 batch

1 b.   2 b.   3 b.

$\frac{1}{3}$ lb $\frac{1}{2}$ lb
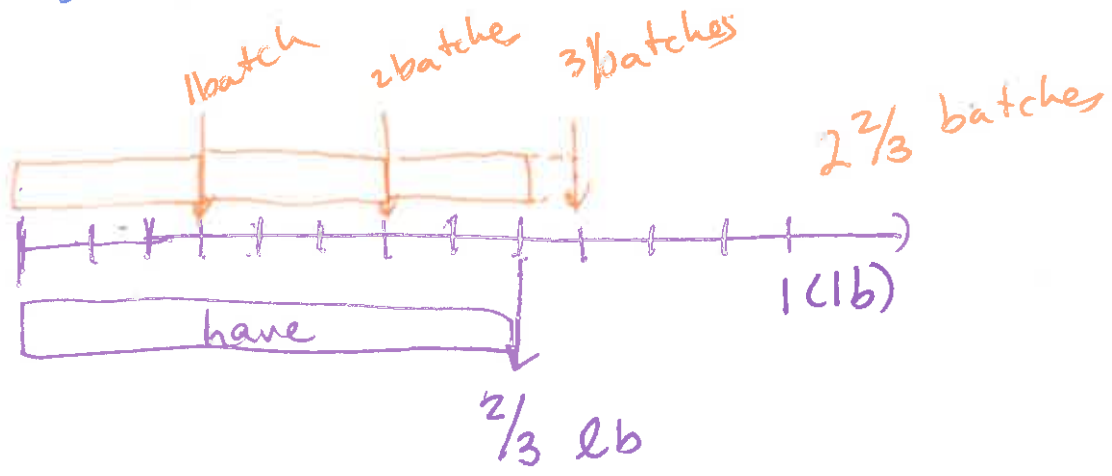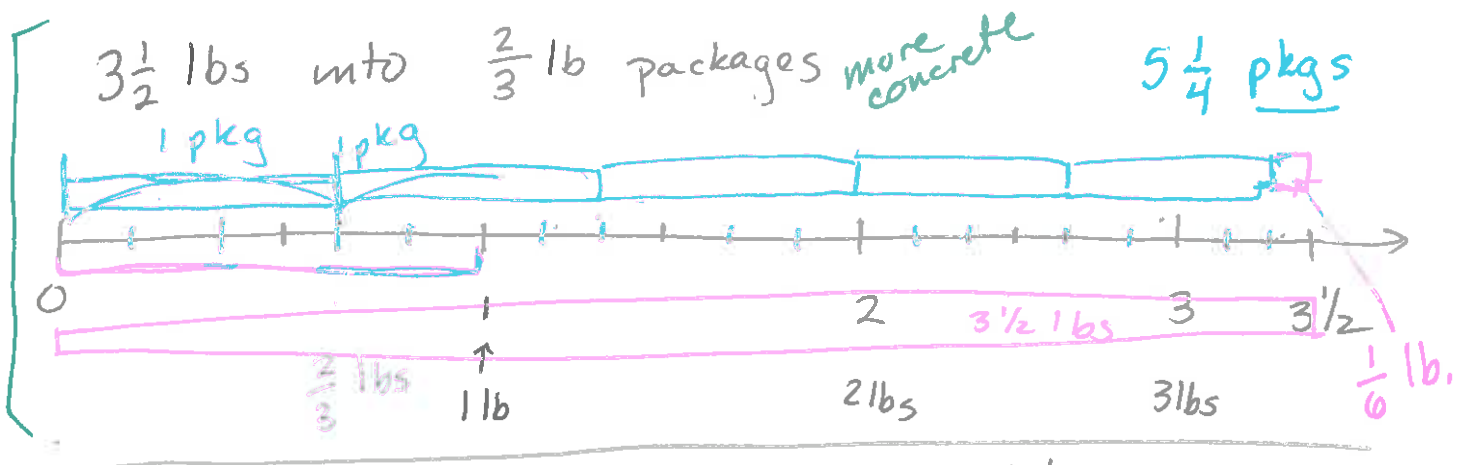
0

3/4 lb = stuff I have

1 unit
1 lb.

$$\frac{3}{4} = \frac{9}{12} \text{ lb.}$$

$$\frac{2}{3} \div \frac{1}{4} = 2\frac{2}{3}$$ $$\frac{2}{3} = \frac{8}{12} (lb)$$ $$\frac{1}{4} = \frac{3}{12} (lb)$$

1 batch   2 batches   3 batches

$2\frac{2}{3}$ batches

1 (lb)

have

$\frac{2}{3}$ lb

$3\frac{1}{2}$ lbs into $\frac{2}{3}$ lb packages more concrete $5\frac{1}{4}$ pkgs

1 pkg   1 pkg

0   1   2   3½ lbs   3   3½

$\frac{2}{3}$ lbs   1 lb   2 lbs   3 lbs $\frac{1}{6}$ lb.

$\frac{2}{3}$ lb tomatoes is what part of $\frac{3}{4}$ lb. tomatoes? batch

2/3 lb

0   1
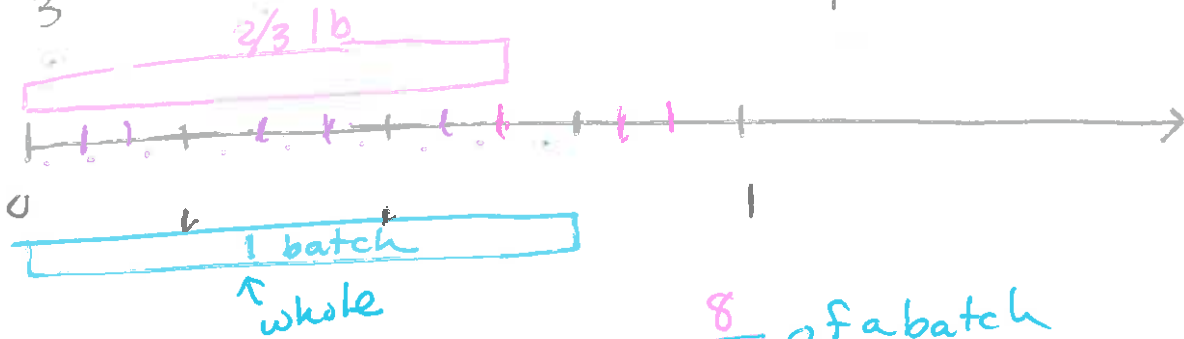
1 batch
↑ whole

$\frac{8}{9}$ of a batch

Some more word problems:

1. A full jar holds 2/3 lb of jelly. How much does 3/4 of a jar of jelly weigh? $\frac{3}{4}$ of $\frac{2}{3}$
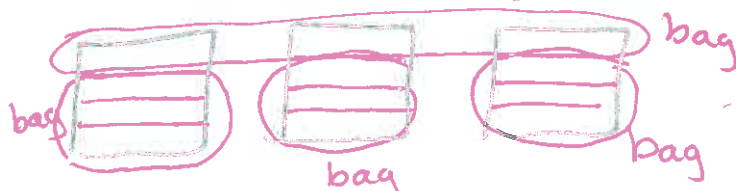
2. Mike has 3 lbs of candy. He wants to put 1/4 lb of candy into each bag. How many bags can he fill?
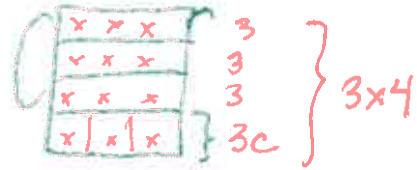
    1 lb

    4 fourths in 1 lb
    4×3 fourths in 3 lb

3. John has 3 lbs of candy. He wants to put 3/4 lb of candy into each bag. How many bags can he fill?

    8   12

   bag   bag   bag

    $3 \times 4 \div 3$
    4 bags.

4. Sarah has a pitcher that is 1/4 full of water. There are 3 cups of water in it. How many cups of water can her full pitcher hold?
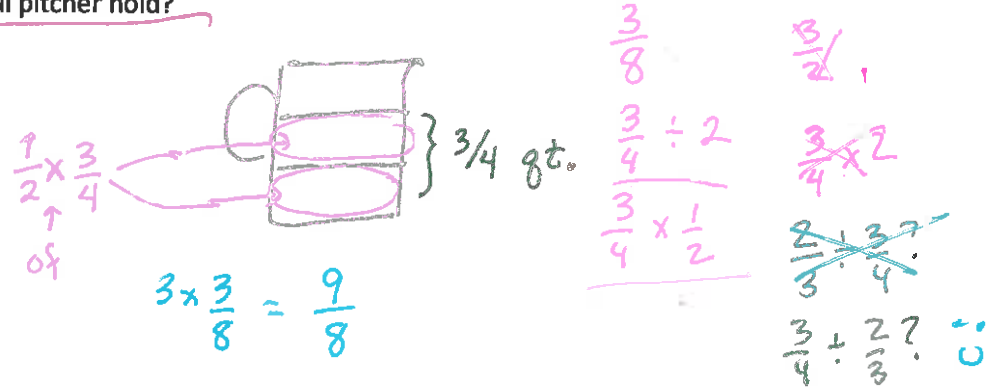
    3
    3
    3
    3c   } 3×4

5. Jenna has a pitcher that is 3/4 full of water. There are 3 cups of water in it. How many cups of water can her full pitcher hold?

    $3 \div 3 = 1$

    water = 3 cups

    4 cups

6. Kylie has a pitcher that is 2/3 full of water. There are 3 cups of water in it. How many cups of water can her full pitcher hold?

    $3 \div 2$
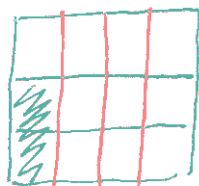 $3 \times \frac{1}{2}$

    3/2
    3/2
    3/2   } 2/3 full = 3 c.

    $3 \times \left(\frac{3}{2}\right) = \frac{9}{2} = 4\frac{1}{2}$
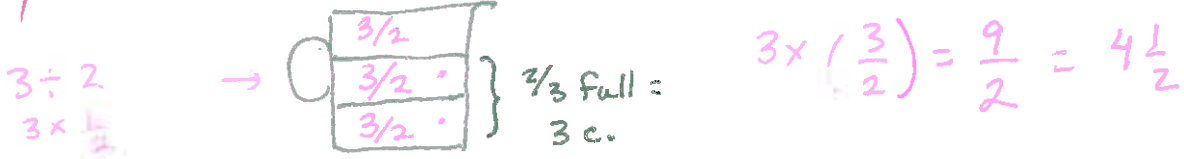
7. Paula has a pitcher that is 2/3 full of water. There is 3/4 of a quart of water in it. How many quarts of water can her full pitcher hold?
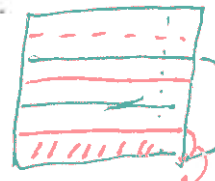
    $\frac{1}{2} \times \frac{3}{4}$
    of

    } 3/4 qt.

    $\frac{3}{8}$

    $\frac{3}{4} \div 2$
    ___
    $\frac{3}{4} \times \frac{1}{2}$

    $\frac{3}{2}$,

    $\frac{3}{4} \times 2$

    $\frac{2}{3} \div \frac{3}{4}$

    $3 \times \frac{3}{8} = \frac{9}{8}$

    $\frac{3}{4} \div \frac{2}{3}$?

A bag of candy weighs $\frac{2}{3}$ lb.

How much does $\frac{1}{4}$ bag weigh?

$\frac{2}{3} \times \frac{1}{4}$

$\frac{2}{3}$ lb = 1 bag

$\frac{1}{4}$ bag = $\frac{2}{12}$ lb

1 bag = $\frac{2}{3}$ lb

$\frac{1}{4}$ bag = $\frac{1}{6}$ lb.

Mike has 2 lbs of candy

If he puts $\frac{2}{3}$ lb of candy in each bag.
How many bags can he fill?
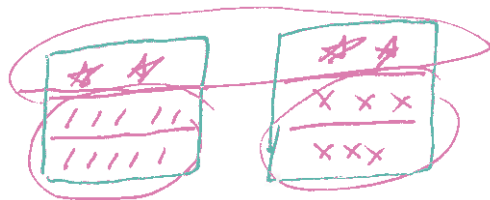
3 bags.

Partition

I have $3\frac{1}{2}$ lbs of sugar. It is $\frac{2}{3}$ of my sugar box. How much sugar in 1 full box?

$\frac{2}{3}$ box $= 3\frac{1}{2}$ lbs $= \frac{7}{2}$ lbs

$\frac{1}{2}$ of $3\frac{1}{2}$ lbs

1 box = ? lbs

$\times 3$

$$\frac{7}{2} \times \frac{1}{2} \times \frac{3}{1} = \frac{7 \times 3}{2 \times 2}$$

6. Fill in the blanks and draw a number line picture to solve:

$\frac{2}{3}$ of $\boxed{\frac{4}{5}}$ of a unit. $\boxed{} \times \boxed{}$ 2/3 of $\downarrow$ 12 parts in here

$\frac{4}{5}$ un   1 un.

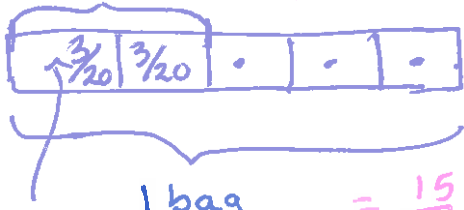$\frac{\cdot 8}{15}$ ← parts to my fraction
← parts in 1 unit

7. Draw an area picture (with squares) to solve $\frac{2}{3} \times \frac{4}{5}$. Explain with words how the picture shows that the answer should

be $\frac{2 \times 4}{3 \times 5}$

$2/5 \text{ bag} = \frac{3}{10} \text{ lb}$

$$\frac{3}{10} \div \frac{2}{5}$$

| $\frac{3}{20}$ | $\frac{3}{20}$ | • | • | • |

1 bag $= \frac{15}{20}$ lb

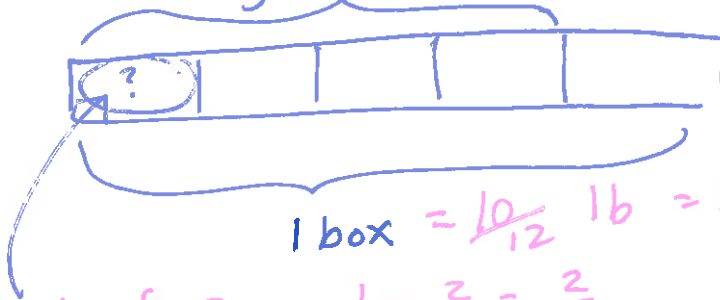$\frac{1}{2} \times \frac{3}{10}$

$$\boxed{\frac{3}{10} \times \frac{1}{2} \times \frac{5}{1}}$$

Mike has $\frac{4}{5}$ box of crackers

His crackers weigh $\frac{2}{3}$ lb.

How much does 1 box weigh?

$\frac{4}{5}$ box $= \frac{2}{3}$ lb

| ? | | | | |

1 box $= \frac{10}{12}$ lb $= \frac{5}{6}$ lb.

$\frac{1}{4}$ of $\frac{2}{3} = \frac{1}{4} \times \frac{2}{3} = \frac{2}{12}$

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

Solve each by drawing a picture. Then try to find an equation that solves the problem the same way.

1. A bag of candy weighs 3/4 of a pound. Jan has 2/5 of a bag of candy. How much does her candy weigh?

I bag= ⌐___⌐ lbs.   Jan has ⌐___⌐ of a bag.   How much Jan's Candy?

2/5 of 3/4 of a lb : multiplication

2. Jan has 2/5 of a bag of candy. Her candy weighs 3/10 of a pound. How much does a full bag of candy weigh? Jan has ⌐___⌐ bag. All of her candy weighs ⌐___⌐ lbs. How much in 1 full bag?

Partition
div

Bar diagram (tape diagram)

3. Jan has 3/10 of a pound of candy. A full bag of candy weighs 3/4 of a pound. How many bags of candy does Jan have? Jan has ⌐___⌐ lbs of candy. 1 full bag weighs ⌐___⌐ lbs. How many bags of Candy?

measurement
div.

4. James has 2/3 cup of milk. Mary has 3/4 as much milk as James. How much milk does Mary have?

5. Mary has 1/2 cup of milk. She has 3/4 as much milk as James. How much milk does James have?

I had 2/3 of a bag of sugar.
I used 1/2 of a bag of sugar to make 😊
cookies. How much sugar is left?

$$\frac{2}{3} - \frac{1}{2}$$

Subtraction

I had 2/3 of a bag of sugar,
I used 1/2 of it the sugar I have to make cookies,
How much do I have left? 😕

$$\frac{2}{3} - \left(\frac{1}{2} \times \frac{2}{3}\right)$$

not just subtraction

I had 2/3 of a bag of sugar

I used 1/2 of it to make cookies. (same

How much sugar is left?

example repeated

Lucy walked ⅔ of a mile,
Mike walked ½ of a mile.
How many more miles did Mike walk
   than Lucy?

Subtract

A chocolate bar weighs $\frac{4}{5}$ lb.

multiplication

Anna ate ⅔ of a choc. bar. multiplication
How much did she eat?
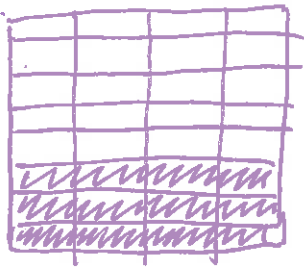
[How many lbs of chocolate did she eat?]
[What fraction of a bar did she eat?]

batch
A recipe calls for ⅔ of a cup of sugar.
How much sugar do I need for 4/5 of
   batch
a recipe?
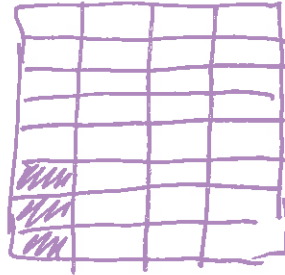
A bag of candy weighs $\frac{3}{8}$ lb.
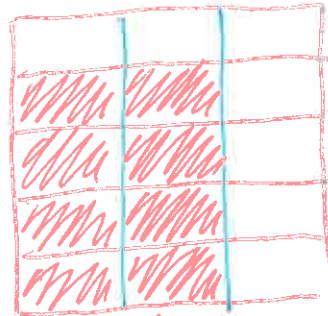
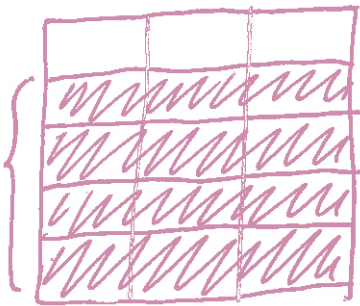How much does $\frac{1}{4}$ bag weigh?

$\frac{3}{8}$ lb

$\frac{1}{4}$ of $\frac{3}{8}$ lb.

A bag of candy weighs $\frac{4}{5}$ lb. How much does $\frac{2}{3}$ bag weigh?
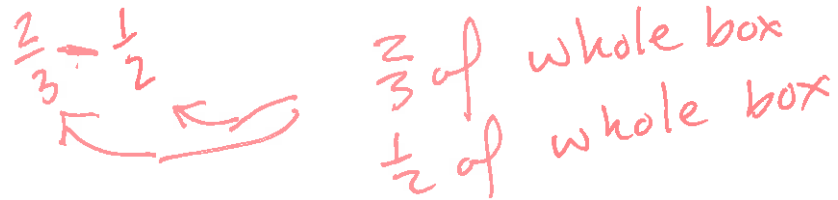
$\frac{4}{5}$ lb

$\frac{2}{3}$ of the $\frac{4}{3}$ lb.

$\frac{2}{3} \times \frac{4}{5} = \frac{2 \times 4}{3 \times 5}$ ← filled in   rows x cols, across x down

← whole   rows x cols.

across x down

(—)

I have $\frac{2}{3}$ of a box of sugar.
I use $\frac{1}{2}$ of ~~the~~ a box to make cookies.
How much sugar do I have left?

$\frac{2}{3} - \frac{1}{2}$

$\frac{2}{3}$ of whole box
$\frac{1}{2}$ of whole box

(X)

I have $\frac{2}{3}$ of a box of sugar.
I use $\frac{1}{2}$ of the ~~box of~~ sugar to make cookies. How much sugar do I use?

~~we~~ $\frac{1}{2} \times \frac{2}{3}$ half of the stuff in the box

↑
$\frac{2}{3}$ of whole box

A recipe calls for ⅔ cup of sugar.
I want to make the recipe ⅘ ~~larger~~ as large
How much sugar should I use?

(X)

Shelly spent ⅜ of the day in school.
She spent ⅘ of the school day helping at
the career fair. What fraction of
the day was spent at the career fair.

(X)