Figure out whether each problem is multiplication or division. Write down the number sentence that would compute the answer to the problem.

There are two good strategies:
- make it into a whole number problem and
- look for the problem structure (amount in sets and number of sets)

Strategy 1: figure it out by turning it into a **whole-number** problem:

1. A can holds 1 2/3 cups of tomato sauce. How much tomato sauce is in 1 1/4 cans?

Whole number version(s):
A can holds **2** cups of tomato sauce. How much tomato sauce is in **3** cans? 2+2+2=3x2

Multiplication: 1 2/3 x 1 1/4

2. I have 3/4 liters of soda. That's 2/3 of a serving. How much soda is in one serving?

Whole number version(s):
I have **2** liters of soda. That's **3** ~~of a~~ servings. How much soda is in one serving? 2 ÷ 3
or
I have **6** liters of soda. That's **2** ~~of a~~ servings. How much soda is in one serving? 6 ÷ 2

Division: 3/4 ÷ 2/3

3. I have 2 5/6 cups of pancake mix. A batch takes 1 1/4 cups of mix. How many batches of pancakes can I make?

Whole number version(s):
I have **2** cups of pancake mix. A batch takes **3** cups of mix. How many batches of pancakes can I make? 2/3

I have **6** cups of pancake mix. A batch takes **2** cups of mix. How many batches of pancakes can I make? 6 ÷ 2

Division: 2 5/6 ÷ 1 1/4

4. I have 2 2/3 yards of string. That's enough to go around the table 1 1/2 times. How many yards of string do I need to go around the table once?

Whole number version(s):
I have **2** yards of string. That's enough to go around the table **3** times. How many yards of string do I need to go around the table once? 2/3

I have **6** yards of string. That's enough to go around the table **2** times. How many yards of string do I need to go around the table once? 6 ÷ 2

Division: 2 2/3 ÷ 1 1/2

5. A tube of paint holds 1 1/3 ounces. How much paint is in 2/3 of a tube of paint?

Whole number version(s):

A tube of paint holds **2** ounces. How much paint is in **3** ~~of a~~ tubes of paint? 2x3

Multiplication: 1 1/3 x 2/3

6. I have 2/3 cups of soda. A serving is 3/4 cup. How many servings do I have?

Whole number version(s):

I have **2** cups of soda. A serving is **3** cup. How many servings do I have? 2/3 cup

I have **6** cups of soda. A serving is **2** cup. How many servings do I have? 6 ÷ 2

*Division:*2/3 ÷ 3/4

7. I have 2 1/2 yards of fabric. It takes 2/3 yard of fabric to make a cub scout flag. How many flags can I make?

Whole number version(s):

I have **2** yards of fabric. It takes **3** yards of fabric to make a cub scout flag. How many flags can I make? 2/3

I have **6** yards of fabric. It takes **3** yards of fabric to make a cub scout flag. How many flags can I make? 6 ÷ 3

Division: 2 1/2 ÷ 2/3

8. A bag of candy weighs 1 1/2 lbs. How much does 3/5 of a bag of candy weigh?

Whole number version(s):

A bag of candy weighs **2** lbs. How much does **3** ~~of a~~ bags of candy weigh? 2x3

Multiplication: 1 1/2 × 3/5

9. I have 2 1/3 cups of water. That fills the jar 5/8 of the way full. How much water would it take to fill the jar?

Whole number version(s):

I have **2** cups of water. That fills ~~the jar~~ **3** ~~of the way~~ jars full. How much water would it take to fill ~~the~~ one jar? 2/3

I have **6** cups of water. That fills ~~the jar~~ **3** ~~of the way~~ jars full. How much water would it take to fill ~~the~~ one jar? 6 ÷ 3

Division: 2 1/3 × 5/8

10. A bottle has 2/3 of a quart of juice in it. How much juice is in 2 1/5 bottles?
Whole number version(s):
A bottle has **2** ~~of a~~ quarts of juice in it. How much juice is in **3** bottles? 2×3

Multiplication: $2/3 \times 2\ 1/5$

11. I have 2 1/2 ounces of dye. It takes 3/5 ounce of dye to dye 1 yard of fabric. How many yards of fabric can I dye?
Whole number version(s):
I have **2** ounces of dye. It takes **3** ounces of dye to dye 1 yard of fabric. How many yards of fabric can I dye? 2/3

I have **6** ounces of dye. It takes **3** ounce of dye to dye 1 yard of fabric. How many yards of fabric can I dye? $6 \div 3$

Division: $2\ 1/3 \div 3/5$

12. I have 2 1/4 pounds of apples. That's enough to make 1 3/5 jars of applesauce. How many apples do I need for 1 jar of applesauce?
Whole number version(s):
I have **2** pounds of apples. That's enough to make **3** jars of applesauce. How many apples do I need for 1 jar of applesauce? 2/3 lb

I have **6** pounds of apples. That's enough to make **3** jars of applesauce. How many apples do I need for 1 jar of applesauce? $6 \div 3$

Division: $2\ 1/4 \div 1\ 3/5$

Wow! I'm really in a rut. I need to mix up my wording. Check out these versions of 10-12 (they say the same thing, but the numbers are in a different order):

10 mixed up: How much juice is in 2 1/5 bottles that each hold 2/3 qt?

Whole number version(s):
How much juice is in **2** bottles that each hold **3** qt? 2×3
 Multiplication: $2\ 1/5 \times 2/3$

11 mixed up: It takes 3/5 ounce of dye to dye 1 yard of fabric. I have 2 1/2 ounces of dye. How many yards of fabric can I dye?
Whole number version(s):

It takes **2** ounces of dye to dye 1 yard of fabric. I have **3** ounces of dye. How many yards of fabric can I dye? 3 ÷ 2

It takes **2** ounces of dye to dye 1 yard of fabric. I have **6** ounces of dye. How many yards of fabric can I dye? 6 ÷ 2
Division: 2 1/2 ÷ 3/5

12. mixed up: I made 1 3/5 jars of applesauce. I used 2 1/4 pounds of apples to make the applesauce. How many apples do I need for 1 jar of applesauce?
Whole number version(s):
I made **2** jars of applesauce. I used **3** pounds of apples to make the applesauce. How many apples do I need for 1 jar of applesauce? 3 ÷ 2

I made **2** jars of applesauce. I used **6** pounds of apples to make the applesauce. How many apples do I need for 1 jar of applesauce? 6 ÷ 2
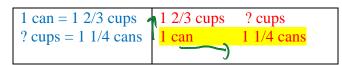
Division: 2 1/4 ÷ 1 3/5

Notice that the order of the numbers has to do with the meaning of the problem, not the order I happened to put them in the problem.
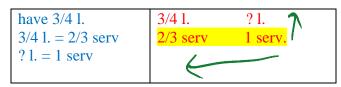
Strategy 2 (optional): look for structure:
To do this, you need to be able to identify which unit corresponds to the groups. In general, standard units (liters, pounds, yards) are usually not groups. In general, somewhere in the problem there is a reference to 1 of whatever the group is.

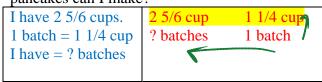1. A can holds 1 2/3 cups of tomato sauce. How much tomato sauce is in 1 1/4 cans?

1 can = 1 2/3 cups ? cups = 1 1/4 cans	1 2/3 cups ? cups 1 can 1 1/4 cans	Cans are the groups. We know how many groups (1 1/4) and how much in each group (1 2/3) so multiplication.

2. I have 3/4 liters of soda. That's 2/3 of a serving. How much soda is in one serving?

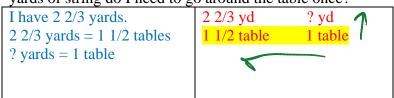| have 3/4 l. 3/4 l. = 2/3 serv ? l. = 1 serv	3/4 l. ? l. 2/3 serv 1 serv.	Servings are groups. We want to know how much in 1 serving, so partitive division. divide the total by the number of groups: 3/4 ÷ 2/3

3. I have 2 5/6 cups of pancake mix. A batch takes 1 1/4 cups of mix. How many batches of pancakes can I make?

I have 2 5/6 cups. 1 batch = 1 1/4 cup I have = ? batches	2 5/6 cup 1 1/4 cup ? batches 1 batch	Batches are groups. We want to know how many batches, so division. Divide the total by the amount in 1 batch: 2 5/6 ÷ 1 1/4

4. I have 2 2/3 yards of string. That's enough to go around the table 1 1/2 times. How many yards of string do I need to go around the table once?

I have 2 2/3 yards. 2 2/3 yards = 1 1/2 tables ? yards = 1 table	2 2/3 yd ? yd 1 1/2 table 1 table	Once around the table is a group. We want to know how much in 1 group: division. Divide the total by the number of groups: 2 2/3 ÷ 1 1/2

5. A tube of paint holds 1 1/3 ounces. How much paint is in 2/3 of a tube of paint?

1 tube = 1 1/3 oz ? oz = 2/3 tube	1 1/3 oz ? oz 1 tube 2/3 tube	Tubes are groups. We know how much is in 1 group, and how many groups, so multiplication

6. I have 2/3 cups of soda. A serving is 3/4 cup. How many servings do I have?

I have = 2/3 cup 1 serving = 3/4 cup I have = ? servings?	2/3 cup 3/4 cup ? serv 1 serv.	Servings are groups. We want to know how many servings, so divide the total by the amount in 1 serving: 2/3 ÷ 3/4

7. I have 2 1/2 yards of fabric. It takes 2/3 yard of fabric to make a cub scout flag. How many flags can I make?

I have = 2 1/2 yds	2 1/2 yds 2/3 yd	flags are groups. I want to know
2/3 yd = 1 flag	? flags 1 flag	how many flags, so divide the total
I have = ? flags		by the amount in 1 group:
		2 1/2 ÷ 2/3

8. A bag of candy weighs 1 1/2 lbs. How much does 3/5 of a bag of candy weigh?

1 bag = 1 1/2 lbs	1 1/2 lbs ? lbs	Bags are groups. I know how many
? lbs = 3/5 bag	1 bag 3/5 bag	bags and how much is in 1 bag, so
		multiplication

9. I have 2 1/3 cups of water. That fills the jar 5/8 of the way full. How much water would it take to fill the jar?

I have = 2 1/3 cup	2 1/3 cup ? cups	Jars are groups. I want to know
2 1/3 cup = 5/8 jar	5/8 jar 1 jar	how much in each jar. Divide the
? cups = 1 jar		total by the number of jars:
		2 1/3 ÷ 5/8

10. A bottle has 2/3 of a quart of juice in it. How much juice is in 2 1/5 bottles?

1 bottle = 2/3 quart	2/3 quart ? quarts	Bottles are groups. I know how
? quart = 2 1/5 bottle	1 bottle 2 1/5 bottles	much is in each bottle and how
		many bottles, so multiplication

11. have 2 1/2 ounces of dye. It takes 3/5 ounce of dye to dye 1 yard of fabric. How many yards of fabric can I dye?

I have = 2 1/2 oz	2 1/2 oz 3/5 oz	A tricky one. In this case, we are
3/5 oz = 1 yard	? yds 1 yd	comparing to **1** yard of fabric
? yards = me?		(sentence 2), so yards is the group.

We want to know how many groups, so divide the total by the amount in 1 group:
2 1/2 ÷ 3/5.

12. I have 2 1/4 pounds of apples. That's enough to make 1 3/5 jars of applesauce. How many apples do I need for 1 jar of applesauce?

I have = 2 1/4 lbs	2 1/4 lbs ? lbs	Jars is the group. I want to know
2 1/4 lbs = 1 3/5 jars	1 3/5 jars 1 jar	how much is in 1 group, so divide
? lbs = 1 jar		the total by the number of groups.
		2 1/4 ÷ 1 3/5