



# Representations of Equal Groups of Fractions

Let's look at diagrams and expressions that can help us multiply a whole number and a fraction.

## Warm-up

### Number Talk: Three, Six, Nine, Twelve

Find the value of each expression mentally.

- $3 \times 6$

- $3 \times 9$

- $6 \times 9$

- $12 \times 9$

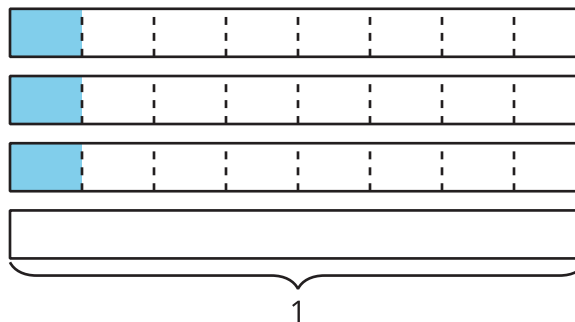


## Activity 1

### Card Sort: Expressions and Diagrams

Your teacher will give you a set of cards.

1. Match each expression to a diagram that represents the same quantity.
2. Record each expression without a match.
3. Han starts drawing a diagram to represent  $7 \times \frac{1}{8}$  and does not finish. Complete his diagram. Be prepared to explain your reasoning.



4. Choose one expression that you recorded earlier that didn't have a match.

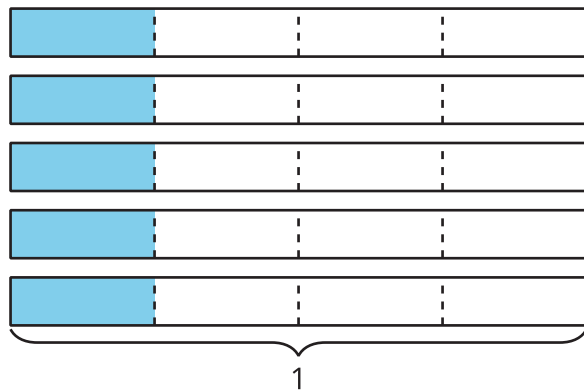
Draw a diagram that can be represented by the expression. What value do the shaded parts of your diagram represent?

## Activity 2

### Different Representations

1. a. Write a multiplication expression that represents the shaded parts of the diagram. Then find the value of the expression.

Diagram:



Expression:

Value:

- b. Draw a diagram that the expression  $6 \times \frac{1}{3}$  could represent. Then find the value of the expression.

Diagram:

Expression:  $6 \times \frac{1}{3}$

Value:

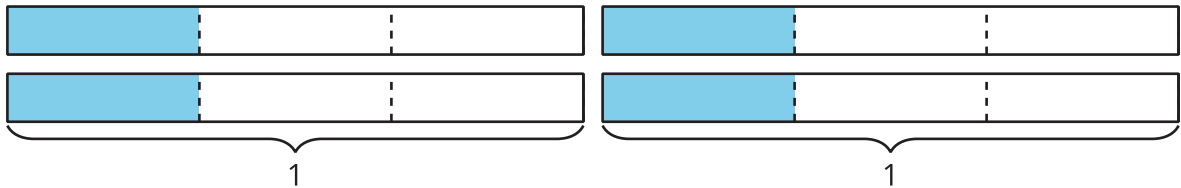
c. Draw a diagram and write an expression that show the value  $\frac{7}{2}$ .

Diagram:

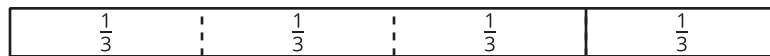
Expression:

Value:  $\frac{7}{2}$

2. To represent  $4 \times \frac{1}{3}$ , Diego drew this diagram:



Elena drew this diagram:



Are they representing the same expression and the same value? Explain or show how you know.