

Make One Whole

Use equal parts to build 1.

GRADE 4 • 4.CE.3.d

4.CE.3.d "Apply the inverse property of multiplication in models (e.g., use a visual fraction model to represent 44 or 1 as the product of 4×14)."

NAME _____

DATE _____

THE BIG IDEA

A whole number times its matching unit fraction equals 1. Think of one whole split into equal parts. When you put all of those one-part pieces together, you have one whole again.

WORKED EXAMPLE

Use an equal-parts model to show why $9 \times \frac{1}{9} = 1$.

1. Start with 1 whole bar.
2. Split the bar into 9 equal parts.
3. Each part is $\frac{1}{9}$ of the bar.
4. Nine parts make $\frac{9}{9}$, which is 1 whole.

Answer: $9 \times \frac{1}{9} = 1$

PRACTICE 6 problems

- 1** A strip is divided into 3 equal parts. One part is $\frac{1}{3}$. Complete: $3 \times \underline{\hspace{1cm}} = 1$

ANSWER _____

- 2** Complete: $5 \times \underline{\hspace{1cm}} = 1$

ANSWER _____

- 3** A whole is split into 8 equal pieces. Write a multiplication equation to show that 8 one-piece groups make 1 whole.

ANSWER _____

- 4** Which product equals 1? $6 \times \frac{1}{5}$, $6 \times \frac{1}{6}$, or $5 \times \frac{1}{6}$

ANSWER _____

- 5** Complete: $\underline{\hspace{1cm}} \times \frac{1}{12} = 1$

ANSWER _____

- 6** A rectangle is divided into 10 equal squares. A student says $10 \times \frac{1}{10} = 10$. Is the student correct? Write the correct product.

ANSWER _____

APPLY IT Show your work

- 1** At art club, one paper strip is cut into 4 equal pieces. Each piece is $\frac{1}{4}$ of the strip. Four students each take one piece. What multiplication equation shows that all four pieces make one whole strip?

WORK SPACE

ANSWER _____

- 2** In a video game, a progress bar has 7 equal sections. Filling one section means completing $\frac{1}{7}$ of the level. A player fills all 7 sections. What multiplication equation shows the player completed one whole level?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A whole is divided into 15 equal pieces. Three teams each collect 5 pieces. Each piece is $\frac{1}{15}$ of the whole. What fraction of the whole do all three teams collect? Use multiplication to prove your answer.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A strip is divided into 3 equal parts. One part is $\frac{1}{3}$. Complete: $3 \times \underline{\quad} = 1$	$\frac{1}{3}$
2	Complete: $5 \times \underline{\quad} = 1$	$\frac{1}{5}$
3	A whole is split into 8 equal pieces. Write a multiplication equation to show that 8 one-piece groups make 1 whole.	$8 \times \frac{1}{8} = 1$
4	Which product equals 1? $6 \times \frac{1}{5}$, $6 \times \frac{1}{6}$, or $5 \times \frac{1}{6}$	$6 \times \frac{1}{6} = 1$
5	Complete: $\underline{\quad} \times \frac{1}{12} = 1$	12
6	A rectangle is divided into 10 equal squares. A student says $10 \times \frac{1}{10} = 10$. Is the student correct? Write the correct product.	No. $10 \times \frac{1}{10} = 1$.

PART 2 • APPLY IT

- $4 \times \frac{1}{4} = 1$** Each student has one of 4 equal pieces. Four pieces are $\frac{4}{4}$, or 1 whole strip.
- $7 \times \frac{1}{7} = 1$** One filled section is $\frac{1}{7}$ of the level. Seven filled sections make $\frac{7}{7}$, or 1 whole level.

CHALLENGE

1 whole; $3 \times 5 \times \frac{1}{15} = 15 \times \frac{1}{15} = 1$

Accept equivalent equations with the factors reversed, such as $\frac{1}{4} \times 4 = 1$. For the challenge, accept $\frac{15}{15}$ as an equivalent answer to 1 whole.