Contents

Chapter 1

Whole Numbers

What will be covered:

❶ Solving Word Problems Involving

- Repeated Quantities
- Same Quantity (Before)
- Same Quantity (After)
- Before-and-After: Same Total Quantity (Internal Transfer)
- Before-and-After: Same Total Quantity (Fixed Items)
- Before-and-After: Same Total Quantity (Equal Amount Removed and Added)
- Before-and-After: Same Difference (Age)
- Before-and-After: Same Difference (Same Quantity Added)
- Before-and-After: Same Difference (Same Quantity Removed)
- Before-and-After: Same One Quantity
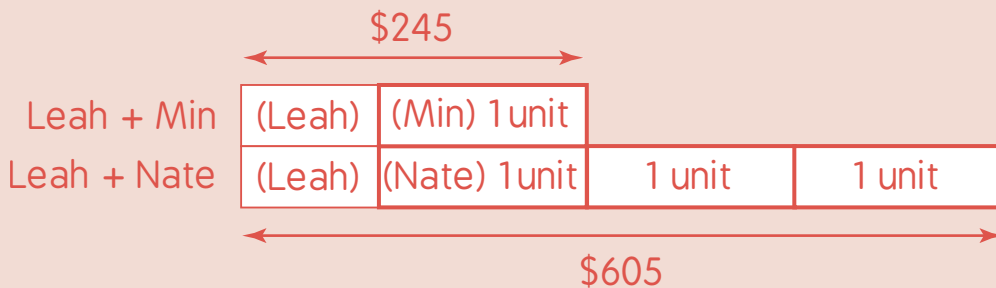- Before-and-After: Both Quantities Changed

Worked Example

Type 3

Leah, Min and Nate went on a shopping spree. Leah and Min spent a total of $245. Leah and Nate spent $605 altogether. Nate spent three times as much as Min.

(a) How much did Min spend?

(b) How much did Leah spend?

Solution:

$245

	Leah	Min / Nate		
Leah + Min	(Leah)	(Min) 1 unit		
Leah + Nate	(Leah)	(Nate) 1 unit	1 unit	1 unit

$605

2 units = $605 − $245

= $360

(a) 1 unit = $360 ÷ 2

= **$180**

Min spent **$180**.
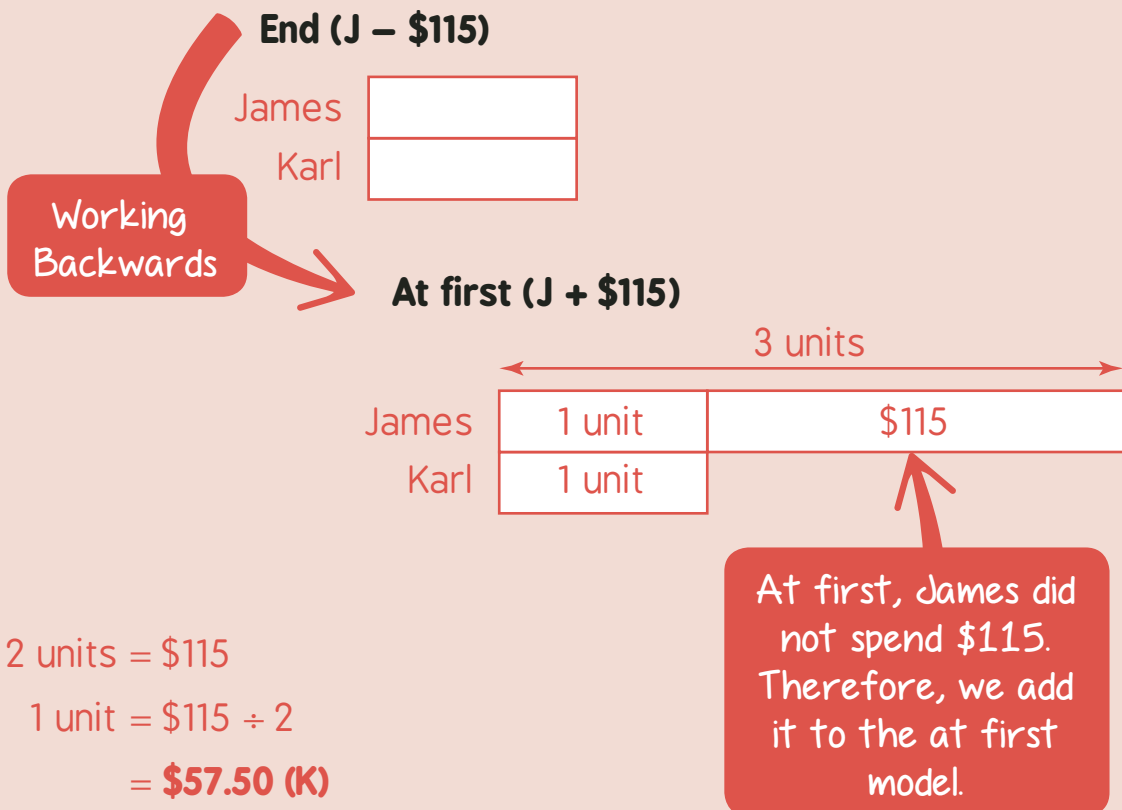
(b) Leah = $245 − $180

= **$65**

Leah spent **$65**.

Worked Example

Type 1

James had three times as much money as Karl. After James spent $115 on a pair of sneakers, he had the same amount of money as Karl. How much money did each of them have at first?

Solution:

> In this question, the keyword "equal number" appears after a change happens. Therefore, we start drawing the model from the end and work backwards.

End (J − $115)

James	
Karl	

Working Backwards

At first (J + $115)

3 units

James	1 unit	$115
Karl	1 unit	

> At first, James did not spend $115. Therefore, we add it to the at first model.

2 units = $115

1 unit = $115 ÷ 2

= **$57.50 (K)**

$115 + $57.50 = **$172.50 (J)**

Keith had **$57.50** and James had **$172.50** at first.

1. Chloe had 72 stickers and Shelly had 29 stickers. After buying an equal number of stickers at the shop, Shelly had two times as many stickers as Chloe. How many stickers did each of them buy?

2. Cass had $112 and Drake had $348 more than Cass. After receiving an equal amount of money from their grandmother, Drake had three times as much money as Cass. How much did each of them receive from their grandmother?

2 Addition/Subtraction of Fractions (Mixed Number/ Improper Fraction)

Worked Example

A tailor had $2\frac{5}{6}$ m of thread.

He used $\frac{2}{3}$ m of it to sew a pair of pants and $\frac{1}{2}$ m to sew a shirt.

(a) How much thread did he use altogether?

(b) How much thread did he left?
(Express your answer as an improper fraction.)

Solution:

(a) (Used) $\frac{2}{3} + \frac{1}{2} = \frac{4}{6} + \frac{3}{6}$
$$= \frac{7}{6}$$

He used $\frac{7}{6}$ **m** of thread.

(b) $2\frac{5}{6} = \frac{17}{6}$

(Left) $\frac{17}{6} - \frac{7}{6} - \frac{10}{6}$

He left $\frac{10}{6}$ **m** of thread.