Contents

Worked Example

Sam has $248.50 less than Tom. Tom has three times as much money as Umar. Given that the boys have $1077.30 altogether, how much does Sam have?

Solution:

3 units

Sam		248.50
Tom		248.50
Umar	1 unit	
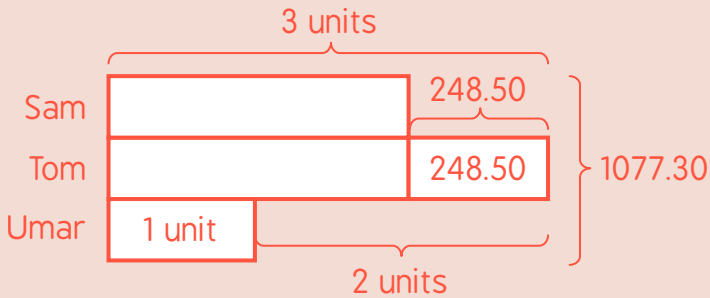
1077.30

2 units

7 units = $1077.30 + $248.50

= $1325.80

1 unit = $1325.80 ÷ 7

= $189.40

Sam's money = 3 × $189.40 − $248.50

= **$319.70**

1. Anna and Shayne had 414 cards altogether at first. Shirley then gave 76 cards to Anna. As a result, Shayne had four times as many cards as Anna. How many cards did Anna have at first?

Answer: _____

2. There are 22 blue pens and 18 red pens in a box at first. After some blue pens were added to the box, the number of blue pens becomes $\frac{5}{6}$ of the total number of pens in the end.

Each statement below is either true, false or not possible to tell from the information given. For each statement, put a tick (✓) in the correct column.

Statement	True	False	Not possible to tell
The number of red pens is $\frac{1}{6}$ of the total number of pens in the box in the end.			
90 blue pens were added to the box.			

1. Lily had a sum of money. She spent $140 on a handbag and then spent $\frac{5}{8}$ of the remaining amount on a skirt. She had $\frac{1}{4}$ of her money left. How much money did Lily have at first?
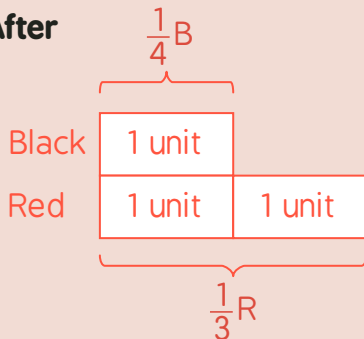
Answer: _____

Solving Word Problems Involving Before-and-After: Both Quantities Changed

Worked Example

There were 480 red markers and black markers in a box. After $\frac{2}{3}$ of the red markers and $\frac{3}{4}$ of the black markers were taken out, there were $\frac{1}{2}$ as many black as red markers left in the box. How many black markers were there in the box at first?
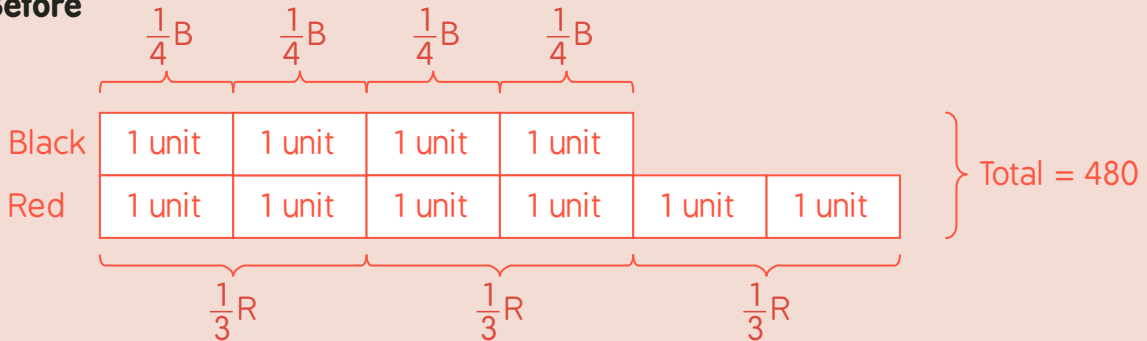
Solution:

After

$\frac{1}{4}$B   Changed

Black	1 unit	
Red	1 unit	1 unit

$\downarrow \frac{2}{3}$

$\downarrow \frac{3}{4}$

$\frac{1}{3}$R

Before

$\frac{1}{4}$B $\frac{1}{4}$B $\frac{1}{4}$B $\frac{1}{4}$B

Black	1 unit	1 unit	1 unit	1 unit		
Red	1 unit	1 unit	1 unit	1 unit	1 unit	1 unit

Total = 480

$\frac{1}{3}$R $\frac{1}{3}$R $\frac{1}{3}$R

10 units = 480

1 unit = 480 ÷ 10

= 48

4 units = 4 × 48

= 192

There were **192** black markers in the box at first.

1. At first, Louise had $88 and Alvin had $46. Each of them bought a soccer ball at the same price. The amount of money Louise and Alvin had left were in the ratio 5 : 2. How much did the soccer ball cost?

Answer: _____

2. Ahmad has 288 more books than Kayla. After both of then donated the same number of books, Ahmad has 4 times as many books as Kayla.

(a) How many books did Kayla have in the end?

(b) Each of the statements below is either true, false or not possible to tell from the information given. For each statement, put a tick (✓) to indicate your answer.

		True	False	Not Possible to Tell
(i)	Ahmad gave away 100 books.			
(ii)	After Ahmad gives Kayla 144 books, they will have the same number of books.			

Percentage

What will be covered:

❶ Solving Word Problems Involving Increased / Decreased

❷ Solving Word Problems Involving Discounts

❸ Solving Word Problems Involving Part of a Whole

❹ Solving Word Problems Involving Repeated Quantity

❺ Solving Word Problems Involving With Same Amount (at first / in the end)

❻ Solving Word Problems Involving Before-and-After: Same One Item

❼ Solving Word Problems Involving Before-and-After: Same Total

❽ Solving Word Problems Involving Before-and-After: Same Difference

❾ Solving Word Problems Involving Before-and-After: Both Changed

❿ Solving Word Problems Involving of the Remainder Concept

⓫ Solving Word Problems Involving Making the Numerators The Same