



Example

Problem solving: Unchanged total (1)

The ratio of the number of Amber's stamps to the number of Benjamin's stamps is 7 : 9. If Amber gives 144 of her stamps to Benjamin, Benjamin will have thrice as many stamps as Amber. How many stamps does Amber have?

Before

Amber : Benjamin Total
7 : 9 16

After

Amber : Benjamin Total
 $\begin{array}{ccc} \times 4 & 1 & : & 3 \\ & 4 & : & 12 \end{array} \times 4$ $\begin{array}{ccc} & 4 & \times 4 \\ & 16 & \end{array}$

-3u

3 units = 144

1 unit = $144 \div 3 = 48$

7 units = $48 \times 7 = 336$

Answer: 336



Practice

The ratio of the number of marbles Tina has to the number of marbles Percy has is 5 : 3. If Tina gives 270 of her marbles to Percy, the ratio of the number of marbles Tina has to the number of marbles Percy has will become 7 : 9. How many marbles does Tina have?

Answer: _____



Example

Problem solving: Unchanged total (2)



Aiden, Balbir and Caleb shared a present for their mother. Aiden paid 40% of the amount Balbir and Caleb paid. Balbir paid 30% of the amount Aiden and Caleb paid. If Caleb paid \$460 more than Balbir, how much did the present cost?

Aiden : Balbir + Caleb			<u>Total</u>	unchanged total
$2_{\times 13}$	:	$5_{\times 13}$	$7_{\times 13}$	
26	:	65	91	

Balbir : Aiden + Caleb			<u>Total</u>	
$3_{\times 7}$	:	$10_{\times 7}$	$13_{\times 7}$	
21	:	70	91	

Aiden : Balbir : Caleb
26 : 21 : 44

44 units – 21 units = 23 units

23 units = \$460

1 unit = \$460 ÷ 23 = \$20

91 units = \$20 × 91 = \$1820

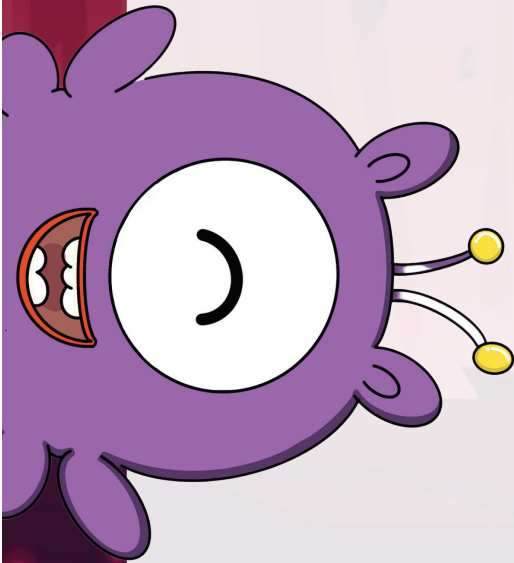
Answer: \$1820





Practice

Walter cuts a piece of rope into 4 pieces. The ratio of the length of the first piece to the total length of the other 3 pieces is 2 : 7. The second piece is 25% of the original length of the rope. The ratio of the length of the third piece to the total length of the other 3 pieces is 4 : 5. If the first piece is 40 cm longer than the fourth piece, find the length of the original rope.



Answer: _____

Singapore Maths Primary 6 (Grade 6)

Worksheet answers, with the key working for each question

Questions from Spartan Maths 6A, Level 107: Fractions, Ratio and Percentage (3). © Singapore Asia Publishers Pte Ltd and Mavis Tutorial Centre.

Page (107)4 Problem solving: Unchanged total (1)

Before, Tina : Percy = 5 : 3 = 10 : 6 (total 16 units).

After, Tina : Percy = 7 : 9 (total 16 units).

Tina went from 10 units to 7 units, so 3 units = 270.

1 unit = $270 \div 3 = 90$

10 units = $90 \times 10 = 900$

Answer: 900

Page (107)6 Problem solving: Unchanged total (2)

Make the total 36 units each time.

1st : rest = 2 : 7 = 8 : 28

2nd is 25%, so 2nd : rest = 1 : 3 = 9 : 27

3rd : rest = 4 : 5 = 16 : 20

4th = $36 - 8 - 9 - 16 = 3$ units

1st - 4th = 8 units - 3 units = 5 units = 40 cm

1 unit = $40 \text{ cm} \div 5 = 8 \text{ cm}$

36 units = $8 \text{ cm} \times 36 = 288 \text{ cm}$

Answer: 288 cm