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Solving word problems (I)

There are 6105 English, Science and Mathematics books, and 1253 Art and Craft books in the neighbourhood library. There are 320 more Science books than English books. There are three times as many Mathematics books as English books.

a) How many English books are there?
b) How many Mathematics books are there?

1. Understand

Find:	Number of English books Number of Mathematics books
Know:	There are 320 more Science books than English books. There are three times as many Mathematics books as English books.
Not useful:	There are 1253 Art and Craft books.

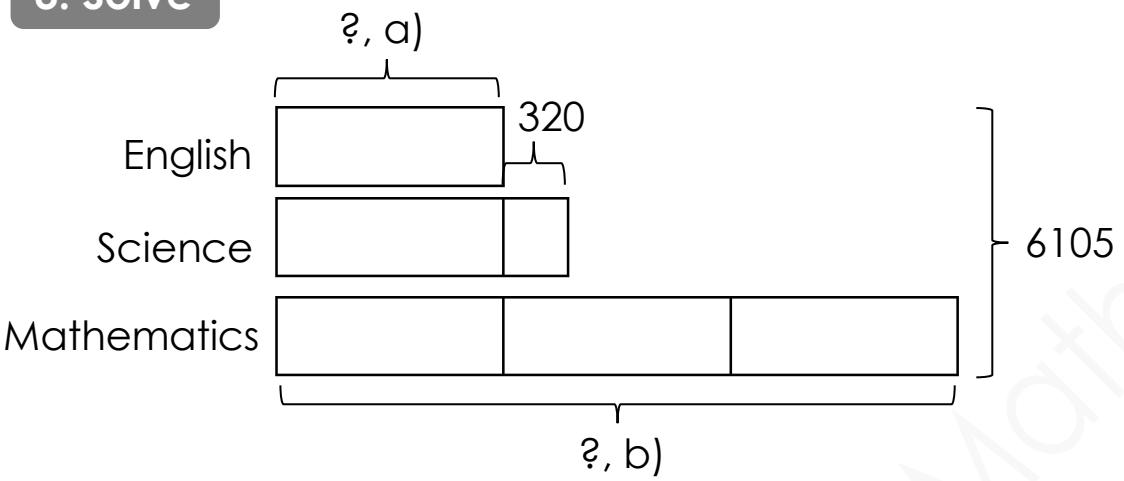
2. Choose the Best Strategy

How many more Science books than English books are there? _____

How many times as many Mathematics books as English books are there? _____

We know that there are 320 more Science books than English books and 3 times as many Mathematics books as English books. We can **draw a bar model**!

3. Solve



a) 5 units = 6105 – 320
= 5785
1 unit = 5785 ÷ 5
= 1157

There are 1157 English books.

b) 3 units = 3 × 1157
= 3471

There are 3471 Mathematics books.

I draw a comparison bar model because we are comparing the number of books of each subject. If **1 unit** is used to represent the number of English books, then 3 × **1 unit** = 3 units represent the number of Mathematics books.

4. Check

How many Science books are there? _____

Using the values you have found, how many English, Science and Mathematics books are there altogether?

_____

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Lina went to a bakery. An egg tart cost $1, a cream puff cost $2 and a cupcake cost $3. She bought 14 cream puffs and cupcakes in all and paid $37 in total. How many cream puffs and how many cupcakes did she buy?

1. Understand

Find:	The number of cream puffs and number of cupcakes Lina bought
Know:	A cream puff cost $2 and a cupcake cost $3. Lina bought 14 cream puffs and cupcakes in all. The cream puffs and cupcakes cost $37 in total.
Not useful:	Lina went to a bakery. An egg tart cost $1.

2. Choose the Best Strategy

We know the cost of a cream puff and a cupcake. We also know the total number of cream puffs and cupcakes Lina bought and the total amount of money she spent. Is there any other useful information?

_____

Since there is no other useful information, let us **guess** the number of cream puffs and cupcakes, **and check** if the total cost matches the given information!

3. Solve

Number of cream puffs	Cost of cream puffs	Number of cupcakes	Cost of cupcakes	Total cost	Check
7	7 × $2 = $14	7	7 × $3 = $21	$14 + $21 = $35	✗

Number of cream puffs	Cost of cream puffs	Number of cupcakes	Cost of cupcakes	Total cost	Check
6	6 × $2 = $12	8	8 × $3 = $24	$12 + $24 = $36	✗
(5)	5 × $2 = $10	(9)	9 × $3 = $27	$10 + $27 = $37	✓

Lina bought 5 cream puffs and 9 cupcakes.

4. Check

Using your answers,
what is the total number of cream puffs and cupcakes bought? _____

what is the total cost of the cream puffs and cupcakes? _____