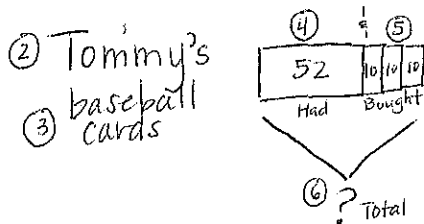# Problem Solving using Model Drawing

Follow the 8 step method:

1. Read the whole problem.
2. Decide who is involved in the problem.
3. Decide what is involved in the problem. (Look at the question.)
4. Draw unit bars of equal length.
5. Read sentence by sentence plugging the information into the visual.
6. Put the question mark in place. (This is the unknown.)
7. Work the computation to the side.
8. Answer the question in a complete sentence.

Addition Examples

① Tommy had 52 baseball cards. He bought another 3 packs of cards. Each pack had 10 cards in it. How many cards did he have altogether?

② Tommy's
③ baseball cards

④ 52 | 10 | 10 | 10
   Had   Bought
⑤
⑥ ? Total

⑦ 52 + 10 + 10 + 10
   52 + 30
   Count on |52|, 62, 72, 82

⑦
$$52 + 30 \over 80$$
$$+ 2 \over 82$$

or

$$52 + 30 \over 82$$

⑧ Tommy had 82 baseball card altogether.

Ⓧ The numbers represent the steps of model drawing.

Sam had 134 baseball cards in his collection. His brother had 365 cards in his collection. How many cards did the brothers have altogether?
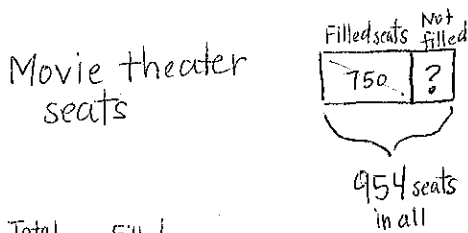
Sam's baseball cards | 134 |

Brother's baseball cards | 134 | |
365 cards
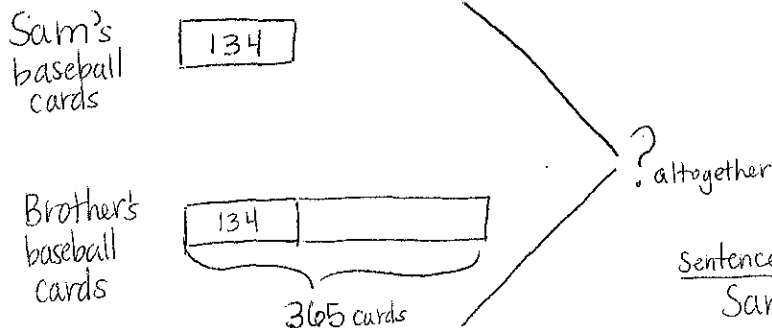
? altogether

Computation
365 + 134 = 499
?

$$365 + 134 \over 499$$

Sentence
Sam and his brother had 499 cards altogether.

Subtraction Examples

A movie theater has 954 seats. If 750 seats were filled by audience members, how many seats were not occupied?

Movie theater seats

Filled seats | Not filled
750 | ?

954 seats in all

Total · Filled
$954 - 750 =$ _____ ? not filled

Computation

$$\begin{array}{r} 9\overset{\vee}{5}\overset{\vee}{4} \\ -750 \\ \hline 200 \\ +4 \\ \hline 204 \end{array}$$

or

$$\begin{array}{r} 954 \\ -750 \\ \hline 204 \end{array}$$

Sentence
Two hundred four seats were not occupied.

After playing games at the carnival, Sara had 378 tickets. Her cousin Kelsey only had 105 tickets. How many more tickets did Sara have than Kelsey?

Sara's tickets

378 tickets

Comparison line

Kelsey's tickets

105 tickets | ? Difference
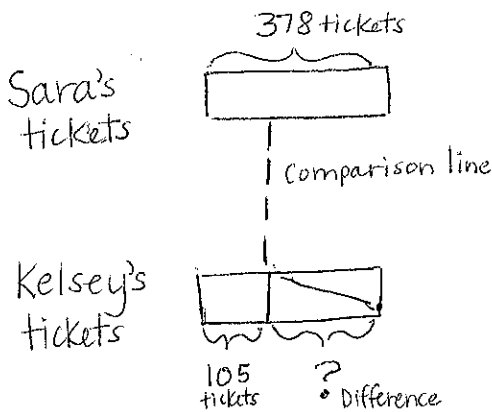
Computation
$378 - 105 = \dfrac{273}{?}$

$$\begin{array}{r} 378 \\ -105 \\ \hline 273 \end{array}$$

Sentence
Sara had 273 more tickets than Kelsey.

Tony made 325 cakes in a year at his bakery. He sold 85 more chocolate cakes than vanilla cakes. If all of the cakes were sold, how many chocolate cakes were sold.

Tony's Chocolate Cakes

?
120 | 85

Tony's Vanilla Cakes

120
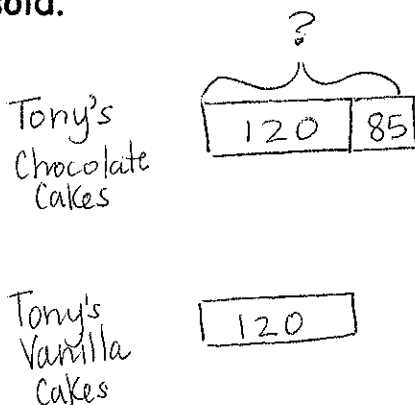
325 cakes (Total)

Computation

$$\begin{array}{r} 325 \\ -85 \\ \hline 300 \\ -60 \\ \hline 240 \\ -0 \\ \hline 240 \end{array}$$

$$\begin{array}{r} 120 \\ +85 \\ \hline 100 \\ +100 \\ +5 \\ \hline 205 \end{array}$$

240 is total of 2 pieces (bars).
So...120 is total of 1 piece (bar).

or

$$\begin{array}{r} 120 \\ +85 \\ \hline 205 \end{array}$$

Sentence
Tony sold 205 chocolate cakes at his bakery.