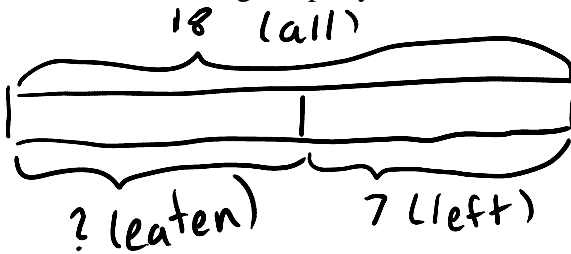# Solutions to bar diagrams problems

For each of the word problems, draw one or more bar diagrams to help you solve and explain the problem (many of these are two step problems where it might make sense to draw separate diagrams for the separate parts of the problem solving process). Try to use a part-whole diagram for part-whole situations, and a compare diagram for compare situations. Make sure you label your bars in a way that would help you explain your solution. Complete the solution by computing and writing the answer. Try to put your final answer into a sentence.

1. Mom baked 18 cupcakes for the birthday party. After the party, there were 7 cupcakes left. How many cupcakes were eaten during the party?
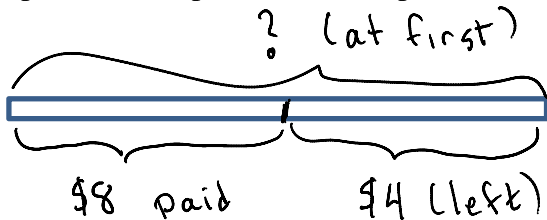


?+7=18 or 18-7=?
18-7=11
11 cupcakes were eaten.

2. Alex paid $8 for a pizza. After the pizza, he had $4 left. How much money did he have at first?
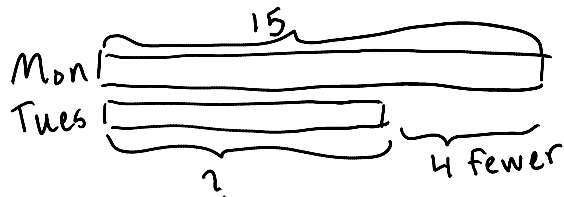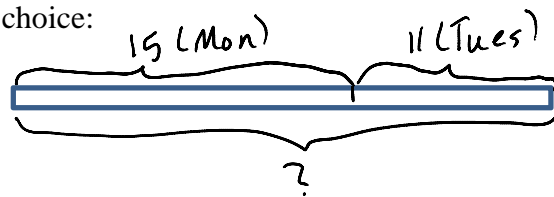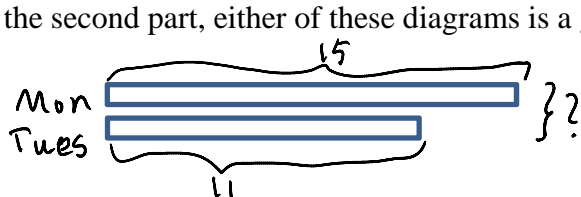


8+4=?
8+4=12
He had $12 at first.

3. Kara made 15 paper cranes on Monday. On Tuesday, she made 4 fewer than she had made on Monday. How many paper cranes did she make in all?



or    ?+4=15    She made
      15-4=?    11 on Tuesday
      ?=11

For the second part, either of these diagrams is a good choice:
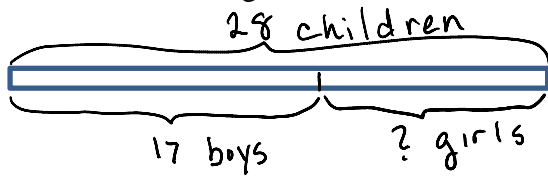


11+15=?        11+15=26
She made 26 cranes in all.

4. There are 28 children in Mrs Triangle's class. 17 of the children are boys. How many more boys than girls are there in Mrs Triangle's class?
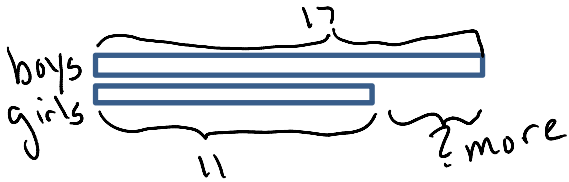
28 children

17 boys     ? girls

$17 + ? = 28$
$28 - 17 = ?$
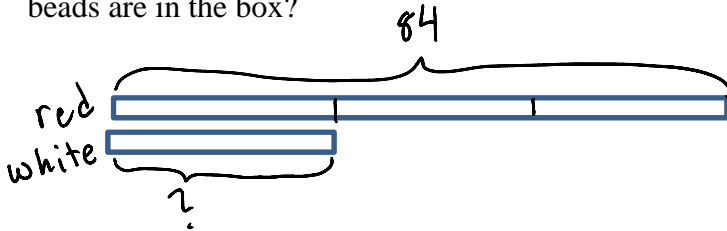$? = 11$

There are 11 girls

boys
girls

17

11     ? more

$11 + ? = 17$
$17 - 11 = ?$
$? = 6$

There are 6 more boys than girls.

5. There are 84 red beads in the box. I have 3 times as many red beads as white beads. How many white beads are in the box?

84

red
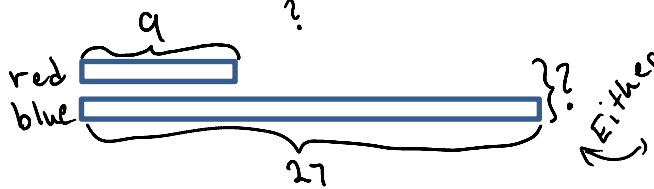white

?

$? \times 3 = 84$
$84 \div 3 = ?$
$? = 28$

There are 28 white beads

6. There are 9 red balloons. There are 3 times as many blue balloons as red balloons. How many balloons are there altogether?
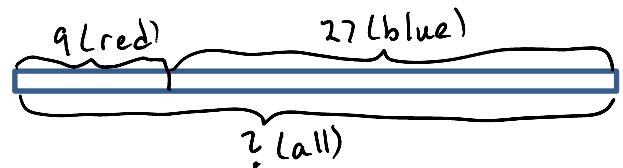
9

red
blue

?

$3 \times 9 = ?$
$? = 27$
27 blue balloons

red
blue

9

27

?? Either

9 (red)     27 (blue)

? (all)

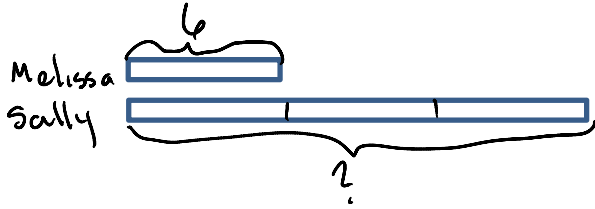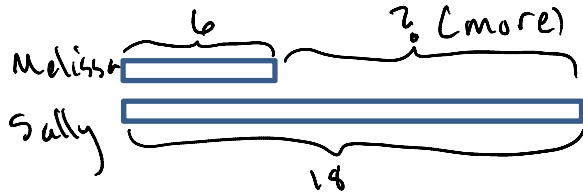$9 + 27 = ?$     $? = 36$

There are 36 balloons

7. Melissa has 6 postcards. Sally has 3 times as many postcards as Melissa. How many more postcards does Sally have than Melissa?

6

Melissa
Sally

?

$6 \times 3 = ?$
$? = 18$

Sally has 18 postcards

6 ? (more)

Melissa
Sally

18

$6 + ? = 18$
$18 - 6 = ?$
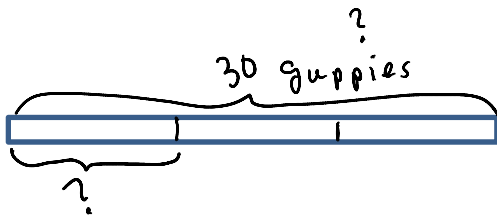$? = 12$

Sally has 12 more postcards than Melissa.

8. Brian has 6 goldfish. He has 5 times as many guppies as goldfish. If he puts his guppies equally into 3 tanks, how many guppies are there in each tank?
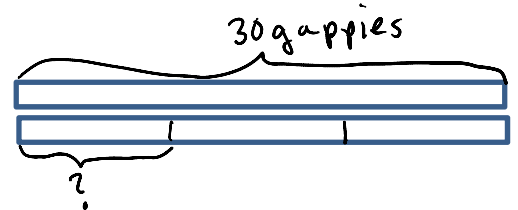
6

goldfish
guppies

?

$6 \times 5 = ?$
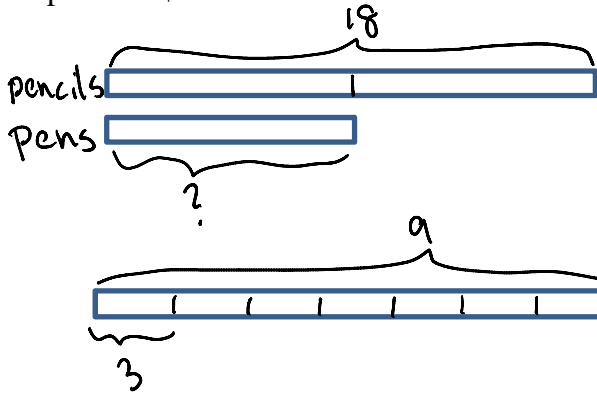$? = 30$

he has 30 guppies

30 guppies

?

$? \times 3 = 30$
$30 \div 3 = ?$        $? = 10$

Either

30 guppies

?

There will be 10 guppies in each tank.

9. Ryan bought 18 pencils. He bought twice as many pencils as pens. How much did he pay for the pens if each pen cost $3?

18

pencils

Pens
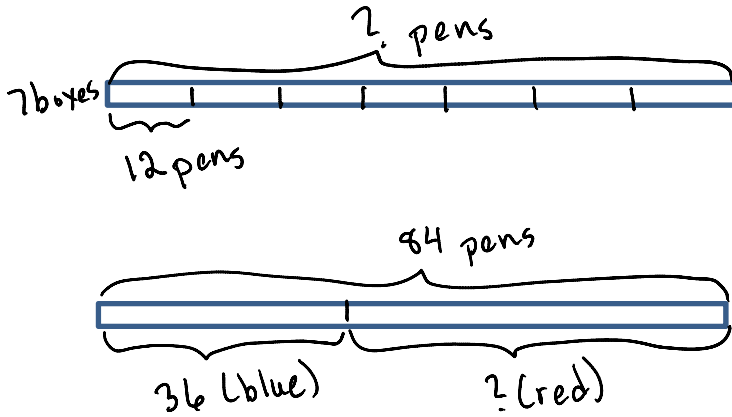
?

$18 \div 2 = ?$

$2 \times ? = 18$    9 pens

$? = 9$

9

3

$3 \times 9 = 27$

The pens cost $27 altogether.


10. There are 7 boxes of pens. Each box has 12 pens. Some of the pens are blue, and the rest are red. If there are 36 blue pens, how many red pens are there?

?, pens

7 boxes

12 pens

84 pens

36 (blue)    ? (red)

$7 \times 12 = ?$

$? = 84$ pens in all

$36 + ? = 84$

$84 - 36 = ?$

$? = 48$

There are 48 red pens