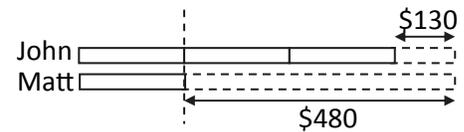


2. Harriet hired some boys, John and Matt, to help her clean out some cages. Both boys earned the same amount of money. If John then spent \$130 and Matt spent \$480, John will have three times as much money left as Matt. How much money did each boy earn?

In this example, drawing a model is easier if we start with the information comparing the amounts they end up with. We can draw 1 unit for Matt and 3 for John, and then add on some for each to bring both bars out to the same amount. 2 units is the difference between what they spent.



$$2 \text{ units} = \$480 - \$130 = \$350$$

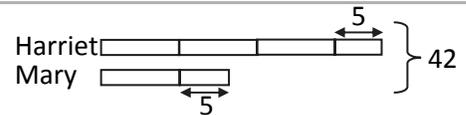
$$1 \text{ unit} = \$350 \div 2 = \$175$$

$$\$175 + \$480 = \$655$$

Each boy earned \$655.

3. Five years ago, Harriet was three times as old as her daughter Mary. Now their total age is 42. How old is Mary now?

We can start by showing the comparison between their ages 5 years ago, and then add another part on both bars for 5 years to show their current age. We don't really know if 5 years is longer or shorter than the units, but we can draw it either way.



$$4 \text{ units} = 42 - (2 \times 5) = 32$$

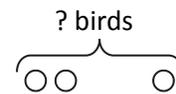
$$1 \text{ unit} = 32 \div 4 = 8$$

$$8 + 5 = 13$$

Mary is 13 years old now.

4. Harriet bought some crackers for her favorite birds. She wanted to give them each the same number of crackers. If she gave each bird 5 crackers, she would have 3 left. If she gave each of them 6 crackers, she would be short 4 crackers. How many favorite birds does she have?

This is an example of a problem where drawing a model is not the only or even the best approach. Although a model is possible, the unit would have to represent the number of birds, not the number of crackers. An easier method is to simply reason it out. Imagine the birds are all lined up and give one cracker to each, then a second, and so on. Another method is to make a list of (multiples of 5) + 3 and (multiples of 6) - 4 until the numbers are the same.

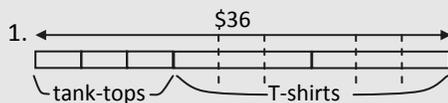


Give each 1 cracker, then another until all have 5.
Give out the 3 extra, there are 4 more birds who don't get a cracker.
She has 7 favorite birds.

Practice

WB Exercise 10, pp. 26-27

Exercise 10



(or draw it as a comparison model)
Make the cost of a tank-top one unit and the cost of T-shirt 3 units.
9 units = \$36
1 unit = $\$36 \div 9 = \4
6 units = $\$4 \times 6 = \24
He spent \$24 on the T-shirts.

2. Group the 45 cards by 3: $45 \div 3 = 15$
Cost price = $15 \times \$2 = \30
Group the 45 cards by 5: $45 \div 5 = 9$
Selling price = $9 \times \$4 = \36
Profit = $\$36 - \$30 = \$6$
He earned \$6.

3. Cost of cookies = $2 \times \$6 = \12
Cost of milk = $6 \times \$2 = \12
Amount she spent = $\$12 + \$12 = \$24$
She had \$30 left.
 $\$24 + \$30 = \$54$
She had \$54 at first.

4. Work backwards. Draw the units they end up with first, and then add the money they spent and make the total the same for both.



1 unit = $\$25 - \$18 = \$7$
Money before = $\$7 + \$25 = \$32$
They each had \$32 at first.