

Santa Ana Math Club

November 20, 2010

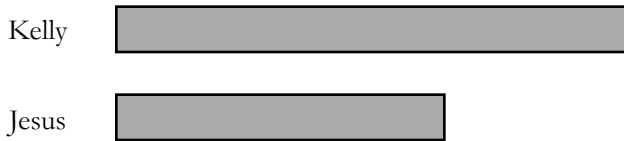
Name:

School:

Grade:

Introductory Algebra Notes - The Bob Method:

Jesus and Kelly together have 22 marbles. Kelly has 6 more marbles than Jesus.
How many marbles does each person have?

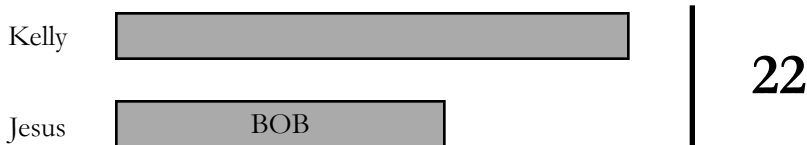


1. The length of the bar represents how many marbles they have. We don't know how long they are, but we do know that Kelly has more marbles, so her bar is longer.

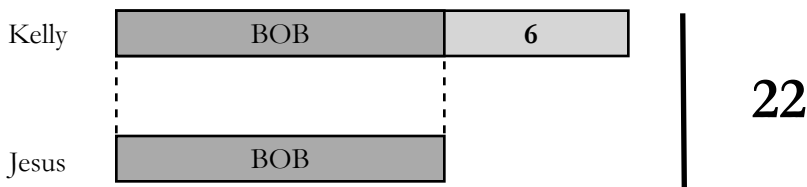
2. Kelly and Jesus have 20 marbles. Kelly and Jesus combined have the same amount of marbles as the other side.



3. Let's name Jesus's bar BOB.



Interesting Fact: Every Bob is exactly the same.

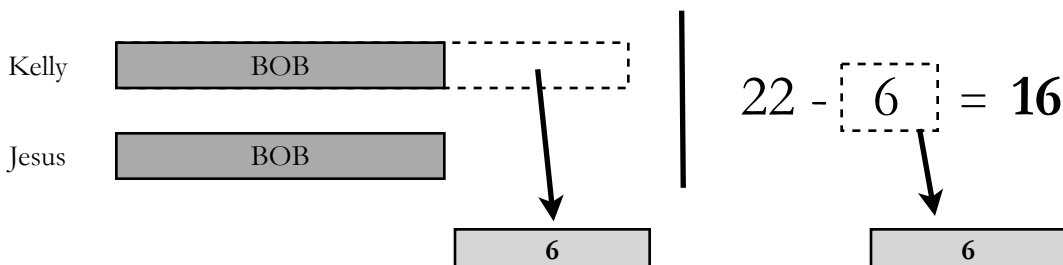


4. Kelly has 6 more marbles than Jesus, so her bar is longer by 6.

5. Her bar is as long as BOB plus 6 more units.

6. Bob only likes other Bobs, so they want to be alone without any numbers. They HATE numbers!

7. We make the 6 leave. But when ones 6 leaves from one side, a 6 leaves from the other side to keep it company.



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Kelly



Jesus



16

Interesting Fact: Bobs are very fair. They always share.

8. Since there are two Bobs, they split the 16 marbles into two parts. Each Bob gets 8 marbles.

$$\text{BOB} = \frac{16}{2} = 8$$

9. Jesus had the same amount of marbles as one Bob.
Jesus then has 8 marbles.

Kelly has 6 more marbles than one Bob. She has 14 marbles.

Sample Bob Problems:

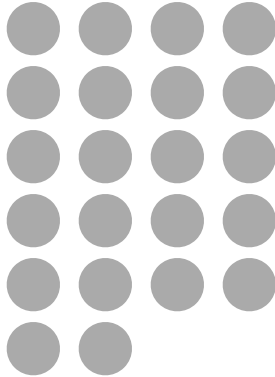
1. Sandra and Lesley both like lollipops. Sandra has 6 more lollipops than Lesley. Together, they have 30 lollipops. How many lollipops does Lesley have?
2. Paola and Alexa went to the beach. They both found sea glass and put it in one bucket. In the bucket, they had 48 pieces of sea glass. Paola found 12 more pieces than Alexa. How many pieces did Paola have?
3. Enrique and Alfredo brought candy to lunch. Enrique had two more than twice as many pieces of candy than Alfredo. Together, they put all of their candy in a bag. In that bag, there were 23 pieces. How much candy did Enrique have to begin with?

Challenge: Nancy, Zeus, and Jasmine all like to read. In a certain month, the three of them combined read 20 books. Each person read different books. Jasmine and Zeus read the same number of books. However, Nancy read 4 more books than Zeus and Jasmine of them combined. How many books did each of them read?

Challenge: Jorge and Hector like to play with marbles. Jorge had 7 more than four times the number of marbles that Hector had. Together they had 37 marbles. How many marbles did Jorge have?

Introductory Algebra Notes - Visual Method:

Jesus and Kelly together have 22 marbles. Kelly has 6 more marbles than Jesus. How many marbles does each person have?

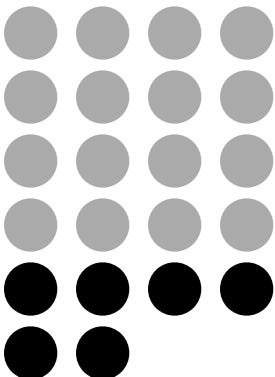


1. The twenty-two circles represent the 22 marbles that Jesus and Kelly have together.

2. Kelly has 6 more than Jesus, so ...

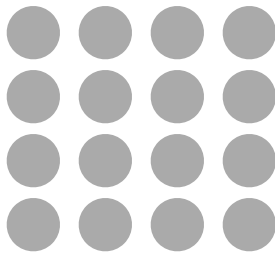
Jesus's marbles + 6 marbles = Kelly's marbles

However many marbles Kelly has is 6 more than Jesus.



3. Kelly has 6 more marbles than Jesus. Take away 6 marbles from Kelly's share, and she now has the same number of marbles as Jesus.

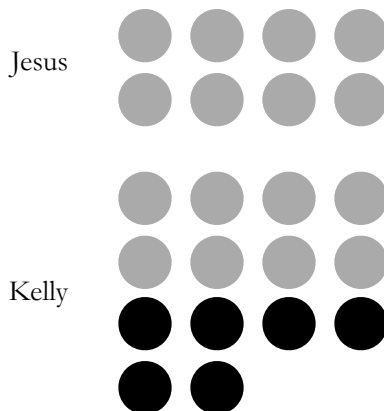
All the marbles look the same, so we can't tell which marbles are hers. Instead, we just take 6 away from their combined bag of marbles.



4. There are only 16 marbles left. These marbles are Jesus's and Kelly's.

Important: We took away 6 of Kelly's marbles already. Since Kelly only had 6 more marbles than Jesus to begin with, she now has the same number of marbles **in the bag** as Jesus.

The marbles in the bag represent Jesus's marbles plus Kelly's marbles minus 6.



5. We split the remaining marbles in the bag into two parts.

6. One pile is Jesus's, the other is Kelly's. However, we took 6 marbles away from the bag in step 3, so we need to return those. **Who do they go to? Kelly**, because she has 6 more than Jesus. So we add the 6 marbles that we took back to her pile.

Kelly has 14 marbles, while Jesus has 8.

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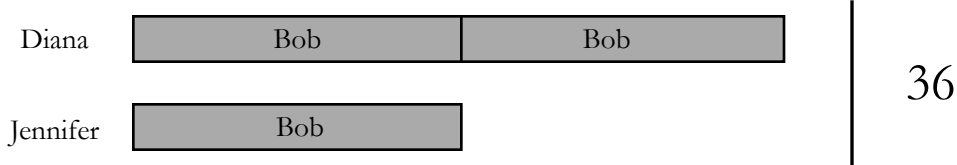
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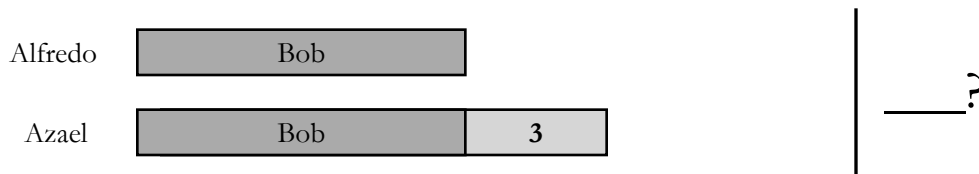
Introductory Algebra Notes - Practice Bob Problems:

Solve the problems starting from the Bob setup given to you.

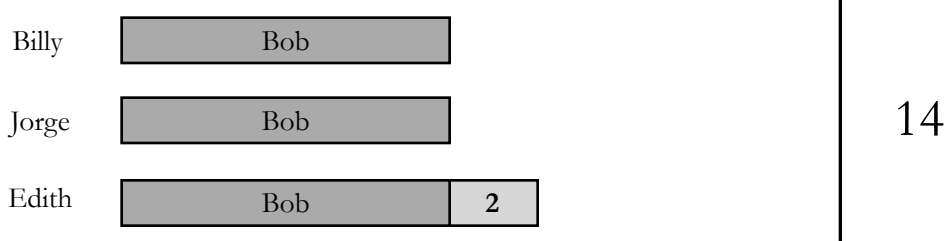
Diana and Jennifer collect stamps. They put their stamps into the same book. Diana collected twice as many stamps as Jennifer. How many did each collect if there are 36 stamps in the book?



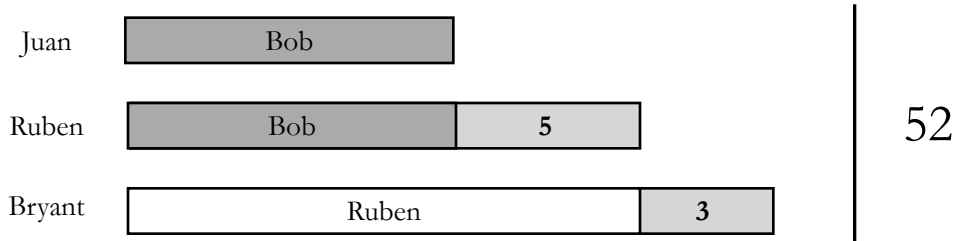
Alfredo and Azael were sharing a baker's dozen of cookies. (**Note:** A baker's dozen is 13. This is a common math competition trick. Know this now instead of missing it later :D) Azael ate three more cookies than Alfredo. How many cookies did Alfredo eat?



Billy, Jorge, and Edith had a movie night. Each person brought several movies on DVD. They watched all of the 14 movies they brought. Billy and Jorge brought the same number of movies, while Edith brought two more movies than Jorge. How many movies did Edith bring?



Challenge: Ruben, Juan, and Bryant were playing with a normal deck of cards. They used all 52 cards. Ruben had five more cards than Juan. Bryant had three more cards than Ruben. How many cards does each person have?



Hint: Make Bryant's bar divided into Bob + something.
Apply the Bob method to Bryant as compared to Ruben.