

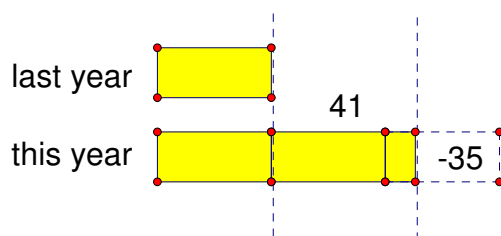
Name:

Date:

1. $\boxed{\text{Alex } C=39, \text{ Alex } K=13}$

2. $\boxed{12}$

3. Let's make a box diagram to help us visualize the problem. We will say that the club last year had 1 box worth of members, and for this year, which had "35 less than 3 times last year," we will draw three boxes (for 3 times last year) and then cut off a piece of the boxes (for the 35 less than).



Now we know that there are 41 more this year compared to last year, so the difference between the two yellow bars is 41 people. Notice, we have the length of 2 boxes! The difference between them is 41, and the end of the third box is 35, so we know 2 boxes = $41 + 35 = 76$. That means that 1 box must represent 38 people. So this year, there is 1 box + 41 more students, so there are $38 + 41 = \boxed{79}$ students.

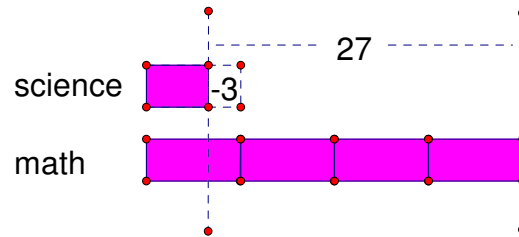
4. $\boxed{80}$

5. $\boxed{\text{Matthew}=42, \text{ Brandon}=10}$

6. $\boxed{A=1200, B=400}$

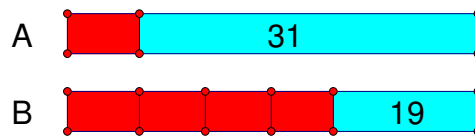
7. $\boxed{\text{Hunter}=5, \text{ Mason}=9}$

8. This problem is similar to problem 3. Again, we will draw a box diagram. Start from the second sentence, which says that the number of students in math club will be 4 times more than the students in science club. So we will draw one box for science club, 4 boxes for math club. But the problem says IF three MORE students join science, then math club is $4 \times$ science club; this IF did not really happen, so we have to take away three students from science.



We know that there are 27 more students in math club than science club. So we know that 3 boxes plus the extra 3 students = 27 students. What does 3 boxes equal then? $27 \text{ students} - 3 \text{ students} = 24$. If 3 boxes = 24 students, 1 box = 8 students. Math club has 4 boxes, so math club has $4 \times 8 = \boxed{32 \text{ students}}$.

9. Set up a diagram. We draw two ropes of equal length. Then we cut off 31 m from A and 19 m from B (the blue portions), and the remaining rope of B is 4 times as many boxes as rope A, so we draw A with 1 box + 31 m and B with 4 boxes + 19 m (the boxes are red).



Now we notice a few things about the diagram. Let's imagine we never cut off anything from both ropes, so they are both still intact. Now let's cut off the first box of both ropes, so they are still equal length. Now Rope A is 31 m, and Rope B is 3 boxes + 19 m. Now let's cut off 19 m from the ends of both ropes, so we have $31 - 19 = 12$ m left of Rope A, and only 3 boxes left of Rope B. Now we see that $12 \text{ m} = 3 \text{ boxes}$, so 1 box = 4 m. So the original length of rope A was $4 + 31 = 35$, and the original length of rope B was $4 \text{ boxes} \times 4 \text{ m} + 19 \text{ m} = 16 + 19 = \boxed{35}$

10. $\boxed{\text{Nicholas}=5, \text{Ryder}=20}$