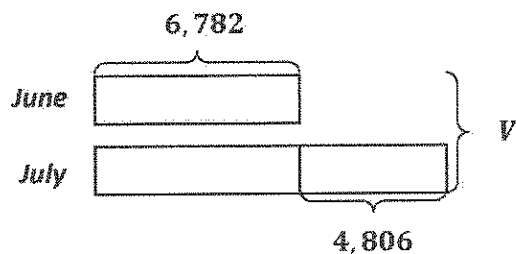


G4-M1-Lesson 12

Estimate and then solve. Model the problem with a tape diagram. Explain if your answer is reasonable.

1. There were 4,806 more visitors to the zoo in the month of July than in the month of June. June had 6,782 visitors. How many visitors did the zoo have during both months?



Since the problem states the relationship between June and July, I can draw two tapes. I make July's tape longer because there were more visitors in July. I partition July's tape into two parts: one part for the number of people in June and the other part for 4,806 more visitors.

- a. About how many visitors did the zoo have during June and July?

$$7,000 + 7,000 + 5,000 = 19,000$$

The zoo had about 19,000 visitors during June and July.

To estimate the total, I round each number to the nearest thousand and add those numbers together.

- b. Exactly how many visitors did the zoo have during June and July?

$$\begin{array}{r}
 6,782 \\
 6,782 \\
 + 4,806 \\
 \hline
 21,370
 \end{array}$$

When I look at my tape diagram, I see that I don't have to solve for July to find the total. This saves me a step.

The zoo had exactly 18,370 visitors during June and July.

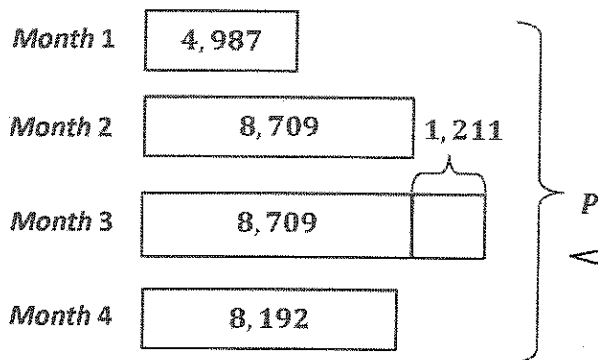
- c. Is your answer reasonable? Compare your estimate to the answer. Write a sentence to explain your reasoning.

Sample Response: My answer is reasonable because my estimate of 19,000 is only about 600 more than the actual answer of 18,370. My estimate is greater than the actual answer because I rounded each addend up to the next thousand.

2. Emma's class spent four months collecting pennies.

- a. During Month 3, the class collected 1,211 more pennies than they did during Month 2. Find the total number of pennies collected in four months.

| Month | Pennies Collected |
|-------|-------------------|
| 1 | 4,987 |
| 2 | 8,709 |
| 3 | |
| 4 | 8,192 |



I draw four tapes to represent each month. Now, I can see how many pennies were collected in Month 3.

$$5,000 + 9,000 + 9,000 + 1,000 + 8,000 = 32,000$$

$$\begin{array}{r}
 4,987 \\
 8,709 \\
 8,709 \\
 1,211 \\
 + 8,192 \\
 \hline
 31,808
 \end{array}$$

I add in unit form: 5 thousands + 9 thousands + 9 thousands + 1 thousand + 8 thousands = 32 thousands. 32 thousand is an estimate of the total number of pennies collected in four months.

To find the total pennies collected in the four months, I could solve for Month 3 and then add all of the months together to solve for P. Instead, I just add the value of each of the tapes together. The tape diagram shows me how to solve this in one step, not two.

The total number of pennies collected in four months was 31,808.

- b. Is your answer reasonable? Explain.

Sample Response: My answer is reasonable. 31,808 is only about 200 less than the estimate of 32,000.