G4-M3-Lesson 20
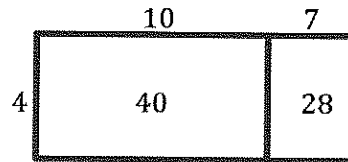
1. Paco solved a division problem by drawing an area model.

   a. Look at the area model. What division problem did Paco solve?

   ```
            10        7
      ┌──────────┬──────┐
   4  │    40    │  28  │
      └──────────┴──────┘
   ```

   $68 \div 4 = 17$

   > I add the areas to find the whole. The width is the divisor. I add the two lengths to find the quotient.

   b. Show a number bond to represent Paco's area model. Start with the total, and then show how the total is split into two parts. Below the two parts, represent the total length using the distributive property, and then solve.
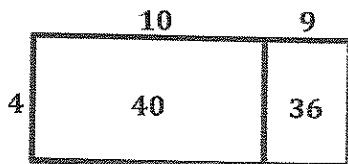
   > Dividing smaller numbers is easier for me than solving $68 \div 4$. I can solve mentally because these are easy facts.
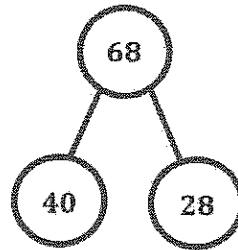
   > In the number bond, I record the whole (68) split into two parts (40 and 28).

   $$(\underline{40} \div \underline{4}) + (\underline{28} \div \underline{4})$$
   $$= \underline{10} + \underline{7}$$
   $$= \underline{17}$$

2. Solve $76 \div 4$ using an area model. Explain the connection of the distributive property to the area model using words, pictures, or numbers.

   ```
            10        9
      ┌──────────┬──────┐
   4  │    40    │  36  │
      └──────────┴──────┘
   ```

   $(40 \div 4) + (36 \div 4)$
   $= 10 + 9$
   $= 19$

   > The area model is like a picture for the distributive model. Each rectangle represents a smaller division expression that we write in parentheses. The width of the rectangle is the divisor in each sentence. The two lengths are added together to get the quotient.

   > I think of 4 times how many lengths of ten get me close to 7 tens in the whole: 1 ten. Then, 4 times how many lengths of ones gets me close to the remaining 36 ones: 9 ones.