

Rate = Ratio = Proportion = Percent

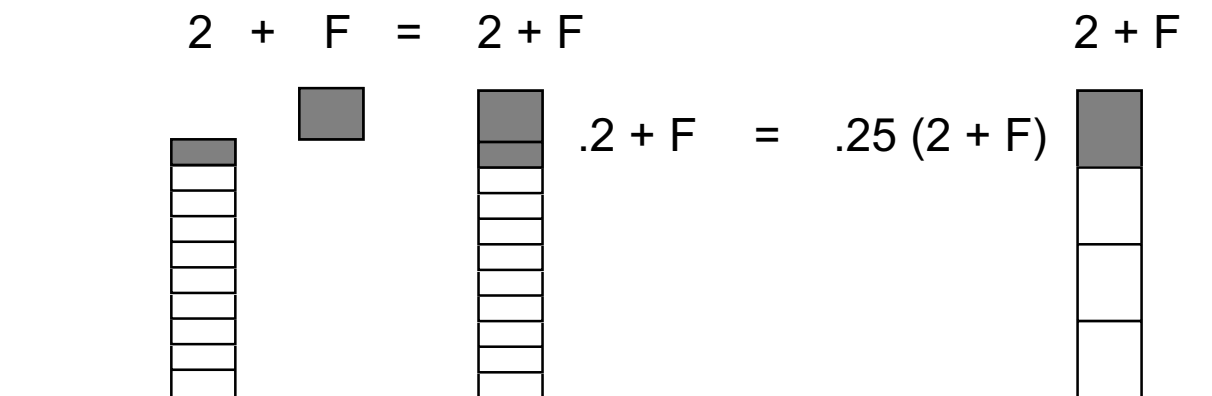
The first step in solving a problem (or creating anything) is to have facts. In a math problem, they are the numbers, which can be complicated or mysterious.

The second step is to draw a picture, (or map, graph, blueprint, model) so you can see what is involved, making the numbers less complicated and mysterious.

(If the problem is on the Math CAHSEE, it's possible to just plug in the multiple choice answers to see which is correct, but the Common Core will require comprehension of the abstract concept).

Lisa will make punch that is 25% fruit juice by adding pure fruit juice to a 2-liter mixture that is 10% pure fruit juice. How many liters of pure fruit juice does she need to add?

- A. 0.4 liters
- B. 0.5 liters
- C. 2 liters
- D. 8 liters



$$\begin{aligned}
 .2 + F &= .25(2 + F) \\
 .2 + F &= .5 + .25F \\
 \underline{-.25F} &\quad \underline{-.25F} \\
 .2 + .75F &= .5 \\
 \underline{-.2} &\quad \underline{-.2} \\
 .75F &= .3 \\
 \frac{.75F}{.75} &= \frac{.3}{.75} \\
 F &= .4
 \end{aligned}$$