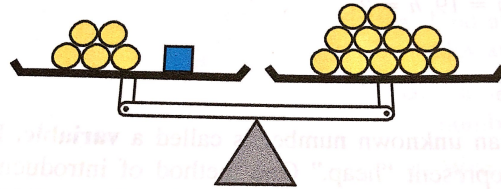


Algebraic Problem Solving

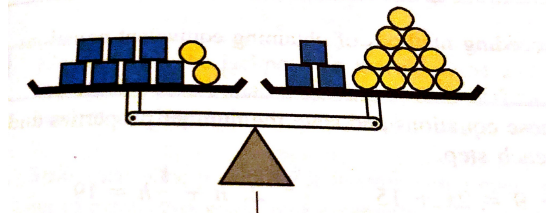
While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

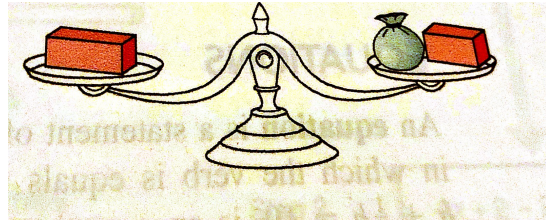
1. Find the weight of the box in terms of balls.



2. Find the weight of the box in terms of the balls.



3. A whole brick is balanced with $\frac{3}{4}$ pound and $\frac{3}{4}$ brick. What is the weight of the whole brick?



4. Find the variable in the following:

(a) $\frac{1}{3}x + 4 = 2x - \frac{7}{9}$

(b) $\frac{2}{x} + 3 = \frac{1}{x}$

5. The following work is wrong. Detect the error and try to detect the reason for the error:

$$\begin{aligned}\frac{4}{x+1} + \frac{2}{3} &= 4 \\ \frac{x+1}{4} + \frac{3}{2} &= \frac{1}{4} \\ \frac{x+1}{4} + \frac{6}{4} &= \frac{1}{4} \\ \frac{x+7}{4} &= \frac{1}{4} \\ x+7 &= 1 \\ x &= -6\end{aligned}$$

6. Eleanor wins the jackpot in a marble game and doubles her number of marbles. If later she wins 55 more marbles, bringing her total to 127 marbles, how many marbles did she have at the beginning?

7. Choose a number and perform the following steps: Add 2 to the number; multiply the result by 4; subtract 6; divide by 2; add 5; divide by 2; and then subtract the number you started with. I bet your answer was 3. Explain the magic trick!