

Sample Pages

The Hands-On Equations[®] Fractions Learning System

Level I



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Sample Lesson

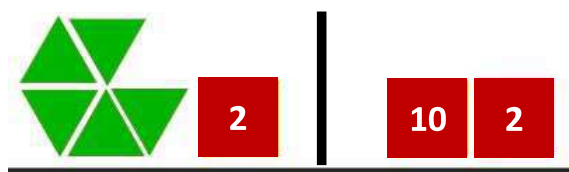
Lesson 2

The new feature of Lesson 2 is that we now have constants on both sides of the equation.

Example 1.

$$\frac{5}{6}y + 2 = 12, \quad G = \quad y = \quad \text{Check: } \underline{\hspace{2cm}}$$

We read the above problem as "Five-sixths of y , increased by 2, is 12." We can also read it as, "Five-sixths of y , and 2 more, is 12." Since one-sixth of y is the green block, $5/6$ of y would be 5 green blocks. Hence, we need 5 green blocks on the left side, as well as a red 2-cube. On the right side, we need red cubes whose sum is 12. (The 5 green blocks on the left side may be arranged differently.)



We can perform the legal move of removing a red 2-cube from each side of the setup, leaving us with 5 green blocks having a value of 10.



From here we see that each green block has a value of 2, so $G = 2$. Since 6 green blocks are equal to the yellow block, the yellow block must be 12. Hence, we have $G = 2, y = 12$. To conduct the check, we go back to the original physical setup. On the left side, substituting 2 for each green block: we have $5 \times 2 = 10$, plus 2, is 12. On the right side we have 12. **Answer:** $G = 2, y = 12, \text{Check: } 12 = 12$.

Example 2.

$$\frac{3}{2}y + 4 = 19, \quad R = \quad y = \quad \text{Check: } \underline{\hspace{2cm}}$$



After removing a 4-value from the cubes on each side of the equation, we are left with 3 red blocks having a value of 15 (not illustrated), and hence each red block is 5, $R = 5$. This leads to a value of 10 for the yellow block, $y = 10$. In doing the check, we have $3 \times 5 + 4 = 19$ on the left side; the right side is also 19. **Answer:** $R = 5, y = 10, \text{Check: } 19 = 19$.

Sample Worksheet

HANDS-ON EQUATIONS® FRACTIONS

Lesson #2
Classwork Sheet

Name: _____
Grade: _____



Use your Hands-On Equations Fractions Kit to solve:

New Work

1. $\frac{1}{2}y + 2 = 16$ ***R*** = ***y*** = ***Check:*** _____

2. $\frac{2}{3}y + 6 = 8$ ***B*** = ***y*** = ***Check:*** _____

3. $\frac{5}{6}y + 5 = 20$ ***G*** = ***y*** = ***Check:*** _____

4. $\frac{4}{3}y + 4 = 12$ ***B*** = ***y*** = ***Check:*** _____

Previous Work

5. $\frac{5}{2}y = 10$ ***R*** = ***y*** = ***Check:*** _____

6. $\frac{4}{6}y = 12$ ***G*** = ***y*** = ***Check:*** _____

7. $\frac{5}{3}y = 20$ ***B*** = ***y*** = ***Check:*** _____

8. $\frac{9}{6}y = 9$ ***G*** = ***y*** = ***Check:*** _____