



Dear Student:

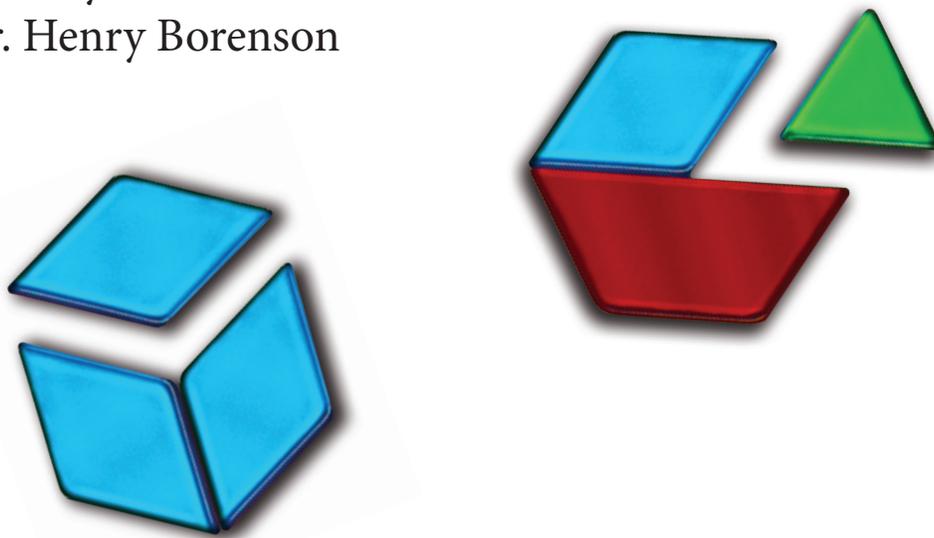
As you go through this workbook you will find that fractions are not so mysterious after all.

Our brains are quite remarkable. If we apply ourselves we will be amazed at how much we can achieve.

I wish you success and enjoyment in learning about fractions.

Thank you.

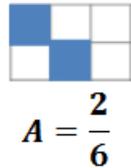
Dr. Henry Borenson



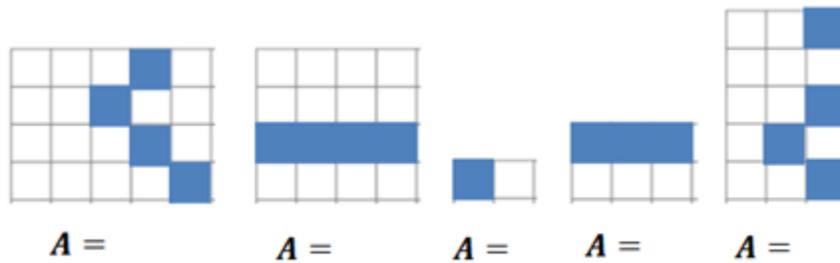
Lesson 5

Understanding Fractions: Rectangular Grids

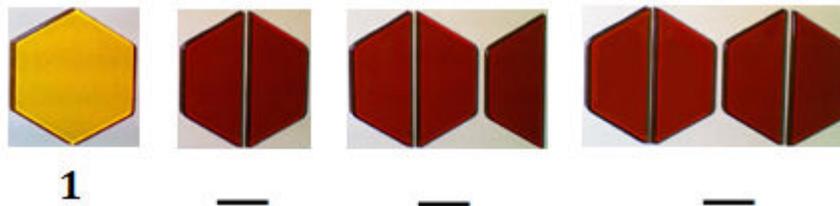
The whole rectangular area below is partitioned into 6 equal small squares. Hence, each small square will be a unit fraction of size $\frac{1}{6}$. Since two small squares are shaded, the size of the blue section is $A = \frac{2}{6}$.



A. In each example below, write the fraction of the large rectangle that is shaded.



B. Review: Given the yellow block as the whole, name each fraction. How many copies of the red blocks to you see? Keep in mind that each red block is $\frac{1}{2}$.



What we have learned:

We can show fractions on a rectangular grid. For example, if a grid is made up of 12 equal parts then five of those parts indicate the fraction $\frac{5}{12}$ of the whole.

Lesson 13

Understanding Equivalent Fractions: Fraction Blocks
Part III

If we consider the yellow block as the whole we can write that $R = \frac{1}{2}$ and $G = \frac{1}{6}$. We notice below that each $\frac{1}{6}$ block is one-third the size of the $\frac{1}{2}$ block. This means that we need three times as many $\frac{1}{6}$ blocks as $\frac{1}{2}$ blocks to form an equivalent fraction.



Hence $\frac{1}{2}$ and $\frac{3}{6}$ are equivalent fractions. We can write the equivalence this way: $\frac{1}{2} = \frac{3}{6}$. Let's consider the missing number in this equation: $\frac{5}{2} = \frac{\quad}{6}$. Since the number of $\frac{1}{6}$ blocks must be triple the number of $\frac{1}{2}$ blocks, and we have five $\frac{1}{2}$ blocks, we need fifteen $\frac{1}{6}$ blocks to form an equivalent fraction. Hence, $\frac{5}{2} = \frac{15}{6}$.

A. Considering the yellow block as the whole, complete the blank in each equation.

a. $\frac{1}{2} = \frac{\quad}{6}$

b. $\frac{2}{2} = \frac{\quad}{6}$

c. $\frac{3}{2} = \frac{\quad}{6}$

d. $\frac{4}{2} = \frac{\quad}{6}$

B. Considering the yellow block as the whole, complete the blank in each equation.

a. $\frac{\quad}{2} = \frac{15}{6}$

b. $\frac{\quad}{2} = \frac{18}{6}$

c. $\frac{\quad}{2} = \frac{21}{6}$

d. $\frac{\quad}{2} = \frac{24}{6}$

What we have learned:

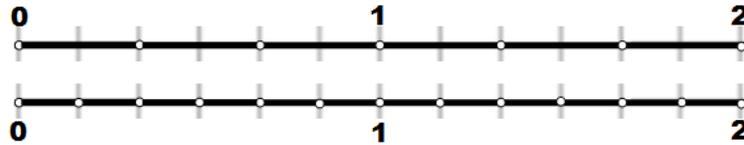
We need three times as many $\frac{1}{6}$ blocks as $\frac{1}{2}$ blocks to form equivalent fractions.

Examples: $\frac{1}{2} = \frac{3}{6}$ and $\frac{5}{2} = \frac{15}{6}$.

Lesson 21

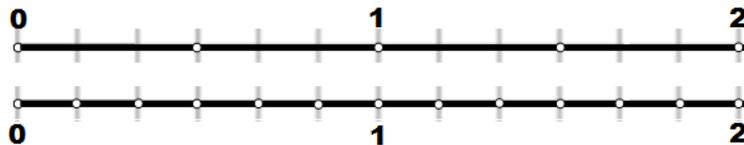
Understanding Equivalent Fractions: Number Line
Part V

A. On the number lines below locate and label the points: $\frac{2}{3}$, $\frac{4}{3}$, $\frac{4}{6}$ and $\frac{8}{6}$.



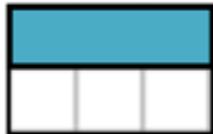
Complete each blank to form equivalent fractions: $\frac{4}{6} = \frac{\quad}{3}$ and $\frac{8}{6} = \frac{\quad}{3}$.

B. On the number lines below locate and label the points: $\frac{1}{2}$, $\frac{3}{2}$, $\frac{3}{6}$ and $\frac{9}{6}$.

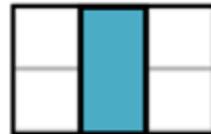


Complete each blank to form equivalent fractions: $\frac{3}{6} = \frac{\quad}{2}$ and $\frac{9}{6} = \frac{\quad}{2}$.

C. Review: Name the fraction that is shaded in each rectangle below.



a. _____

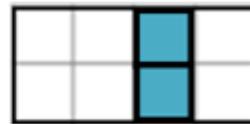


b. _____

D. Review: Name the fraction that is shaded in each rectangle below.



a. _____



b. _____

E. Review: Please complete each blank to form equivalent fractions.

a. $\frac{1}{2} = \frac{\quad}{6}$

b. $\frac{2}{2} = \frac{\quad}{6}$

c. $\frac{3}{2} = \frac{\quad}{6}$

d. $\frac{4}{2} = \frac{\quad}{6}$

**Enrichment
Lesson #4**

**Dividing by a Unit Fraction:
Using Fraction Blocks**

Let's consider how many times the green block goes into the red block. We express this question symbolically by writing $\frac{1}{2} \div \frac{1}{6}$ since the red block is $\frac{1}{2}$ and the green block is $\frac{1}{6}$. We read this as "One-half divided by one-sixth."



We see that the green block goes into the red block three times. We can see this by placing the green blocks next to or on top of the red block. We write the answer as $\frac{1}{2} \div \frac{1}{6} = 3$.

A. Please find the answer to each division problem below by determining how many times the green block goes into the first fraction in each example.

a. $\frac{1}{6} \div \frac{1}{6} =$

b. $\frac{1}{3} \div \frac{1}{6} =$

c. $\frac{2}{3} \div \frac{1}{6} =$

d. $1 \div \frac{1}{6} =$

B. Please find the answer to each division problem below by determining how many times the blue block goes into the first fraction in each example.

a. $\frac{1}{3} \div \frac{1}{3} =$

b. $\frac{2}{3} \div \frac{1}{3} =$

c. $1 \div \frac{1}{3} =$

d. $1\frac{2}{3} \div \frac{1}{3} =$

C. Please find the answer to each division problem below by determining how many times the red block goes into the first fraction in each example.

a. $\frac{1}{2} \div \frac{1}{2} =$

b. $1 \div \frac{1}{2} =$

c. $1\frac{1}{2} \div \frac{1}{2} =$

d. $2 \div \frac{1}{2} =$

D. Please find the answer to each division problem below.

a. $1\frac{5}{6} \div \frac{1}{6} =$

b. $2\frac{2}{3} \div \frac{1}{3} =$

c. $3\frac{1}{2} \div \frac{1}{2} =$

d. $5\frac{1}{2} \div \frac{1}{2} =$