Lesson 10: Use Multiples to Find Equivalent Fractions

- Let's look at a way to find equivalent fractions without using diagrams.

Warm-up: Notice and Wonder: Four Equations

What do you notice? What do you wonder?

- $\frac{1}{3} = \frac{2}{6}$

- $\frac{2}{3} = \frac{4}{6}$

- $\frac{3}{3} = \frac{6}{6}$

- $\frac{4}{3} = \frac{8}{6}$

10.1: Elena's Way

Elena thought of another way to find equivalent fractions. She wrote:

$$\frac{1 \times 2}{5 \times 2} = \frac{2}{10}$$
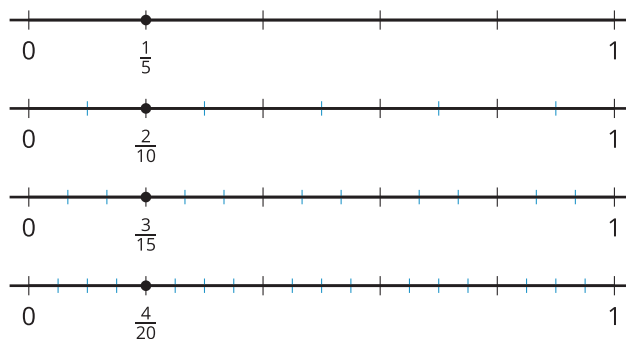
$$\frac{1 \times 3}{5 \times 3} = \frac{3}{15}$$

$$\frac{1 \times 4}{5 \times 4} = \frac{4}{20}$$

$$\frac{1 \times 5}{5 \times 5} = \frac{5}{25}$$

$$\frac{1 \times 10}{5 \times 10} = \frac{10}{50}$$

1. Analyze Elena's work. Then, discuss with a partner:

    a. How are Elena's equations related to Andre's number lines?

    b. How might Elena find other fractions that are equivalent to $\frac{1}{5}$? Show a couple of examples.

2. Use Elena's strategy to find five fractions that are equivalent to $\frac{1}{8}$. Use number lines to check your thinking, if they help.

10.2: Equivalence Hunting

Look at Elena's strategy from an earlier activity.

1. Could her strategy help us know whether two fractions are equivalent? Try using it to check the equivalence of these fractions:

    a. $\frac{5}{2}$ and $\frac{10}{8}$

    b. $\frac{2}{6}$ and $\frac{4}{12}$

    For any two fractions that are equivalent, write an equation.

2. Find all fractions in the list that are equivalent to $\frac{3}{4}$. Be prepared to explain or show how you know.

$$\frac{2}{10} \qquad \frac{6}{8} \qquad \frac{12}{15} \qquad \frac{30}{40}$$

$$\frac{8}{9} \qquad \frac{12}{20} \qquad \frac{12}{16} \qquad \frac{15}{20}$$

$$\frac{8}{10} \qquad \frac{24}{32} \qquad \frac{75}{100} \qquad \frac{60}{80}$$