Project:

Create a Fraction Code

Code Talkers

Code Talkers were Navajos who made a code for the United States armed forces during World War II. The code was used to send secret messages.

Twenty-nine Navajos created the first code. It had 211 words and an alphabet that used Navajo names for animals or birds. The code grew over time, and eventually the Navajos wrote a Code Talker dictionary.

After the Navajos made their code, they practiced with a test message. They translated the message into their code, sent it, and translated it back into English in just two and a half minutes. Other code breakers using non-Navajo codes took hours to do the same thing.

From then on, the Code Talkers sent many important messages for the United States armed forces, and the code was never broken.

Your Project: Create a Fraction Code

Develop a code that you can use to find an equivalent fraction for any fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, or 100.

Start by letting different colors, shapes, or objects stand for the numbers 2, 3, and 5. Then, use combinations of these symbols to stand for the numbers 4, 6, 8, 10, 12, and 100.

Create a Code dictionary showing the symbol that stands for each number; then practice. Write a fraction, and then write an equivalent fraction using your Code dictionary.

Grade 4 | Topic 9 | Pick a Project

Pacing Plan

Day 1
Background Research

Read introduction slides
Notice & Wonder
Introduce task

Day 2
Create your Code

Create symbols for 2, 3, and 5
Use those symbols to build 4, 6, 8, 10, 12, and 100

Day 3
Practice your Code

Make your Code dictionary and use it to practice finding equivalent fractions

Did you know?

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Watch to learn more about Navajo Code Talkers

After the Navajos made their code, they practiced with a test message. They translated the message into their code, sent it, and translated it back into English in just two and a half minutes. Other code breakers using non-Navajo codes took hours to do the same thing. From then on, the Code Talkers sent many important messages for the United States armed forces, and the code was never broken.

Look at this code.
- **What do you notice? How does it work?**
- **What would the number 5 look like?**
- **What would 9 look like?**

Day 1
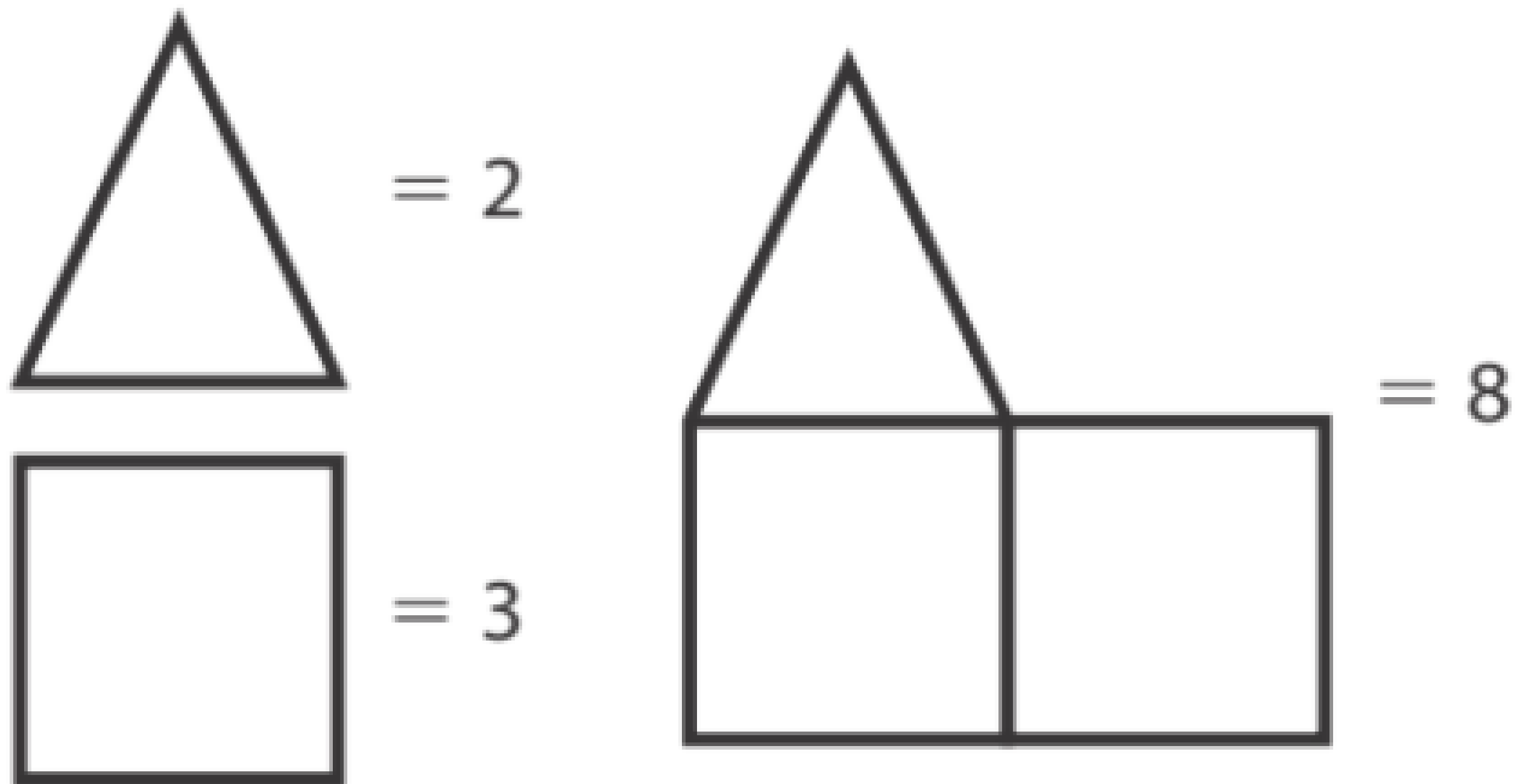
Your Task: Develop a Fraction Code

Develop a code that you can use to find an equivalent fraction for any fractions with denominators of 2, 3, 4, 5, 6, 8, 10, 12, or 100.

Start by letting different colors, shapes. or objects stand for the numbers 2, 3, and 5. Then, use combinations of these symbols to stand for the numbers 4, 6, 8, 10, 12, and 100.

Create a Code dictionary showing the symbol that stands for each number; then practice. Write a fraction, and then write an equivalent fraction using your code dictionary.

Start by letting different colors, shapes, or objects stand for the numbers 2, 3, and 5.

Example
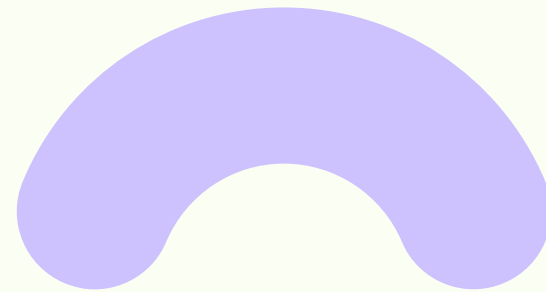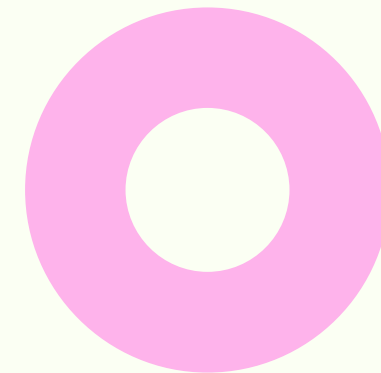
2   3   5

Then, use combinations of these symbols to stand for the numbers 4, 6, and 10.

Example
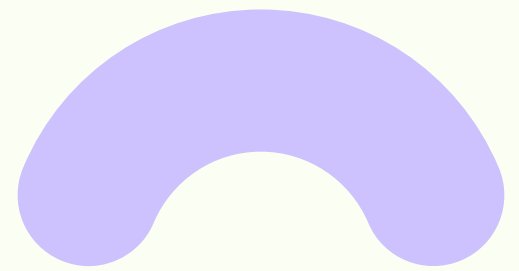
2
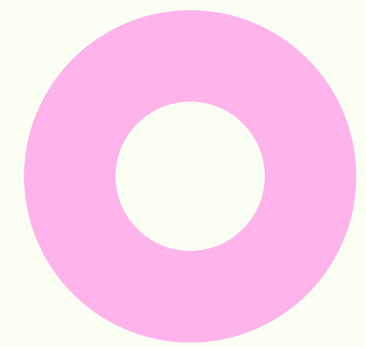
3

5
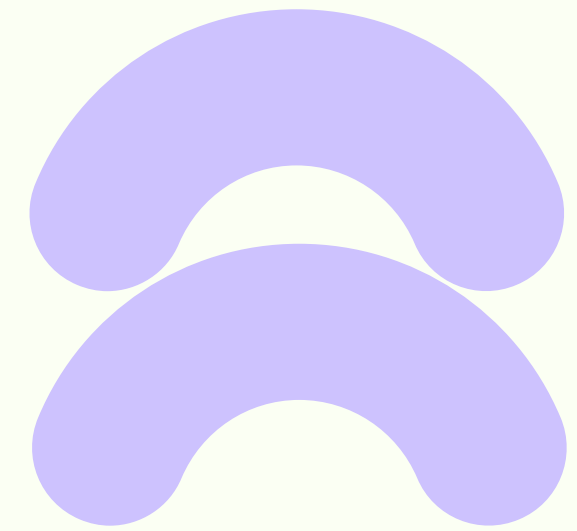
4
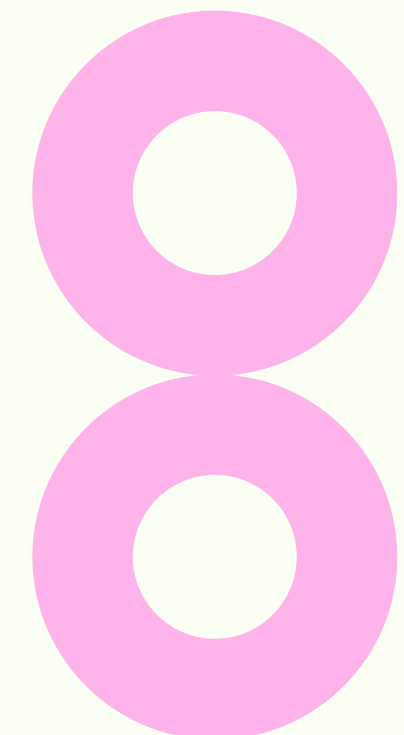
6

10

Which do you think is the best way to build the number 8?
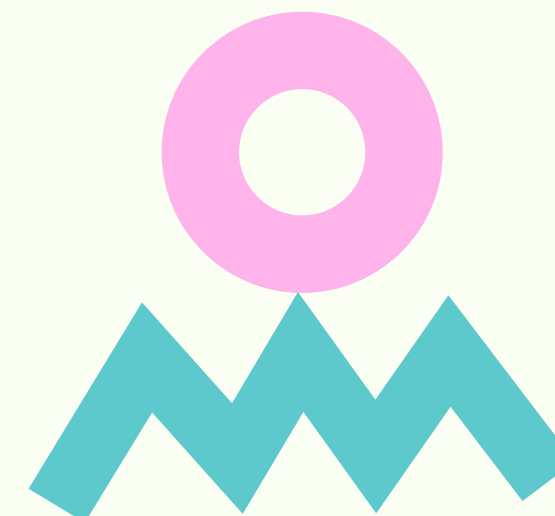
It's your code; you decide.

Example
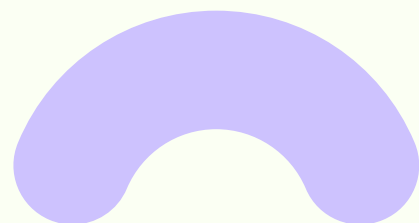
2
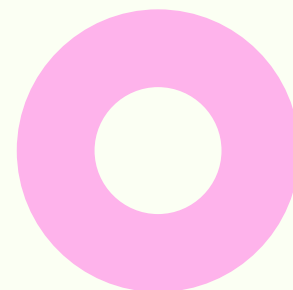
3

5
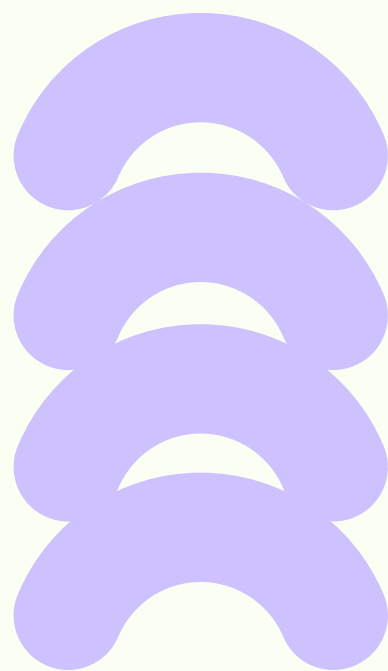
8
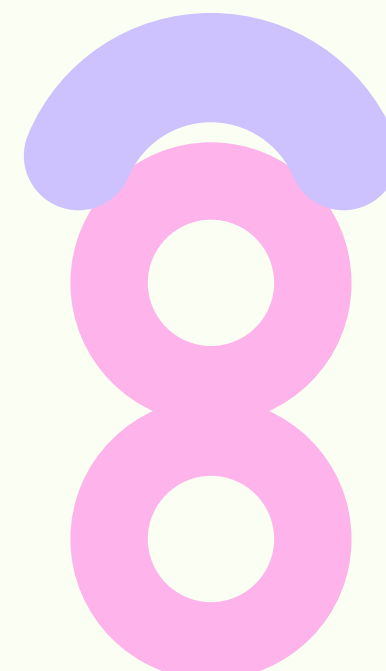
8

8

Continue using combinations of 2, 3, and 5 to stand for the numbers 12 and 100.

Example

2   3   5
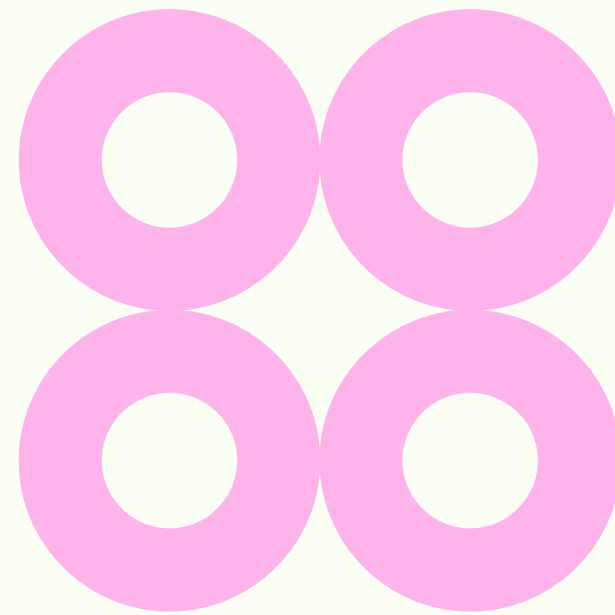
12

100

Create a Code dictionary showing the symbol that stands for each number.
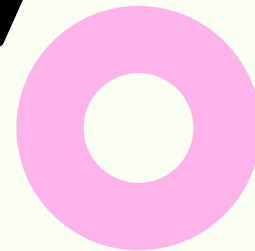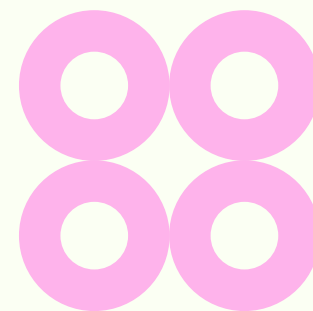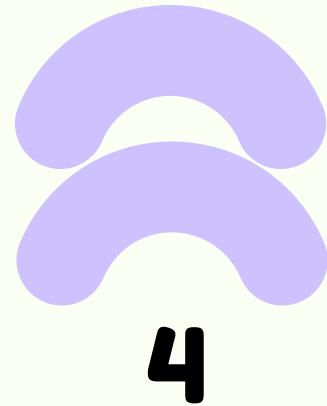
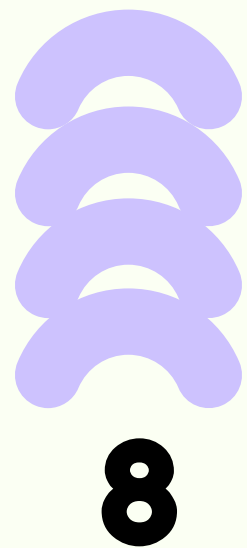**My Code Dictionary**
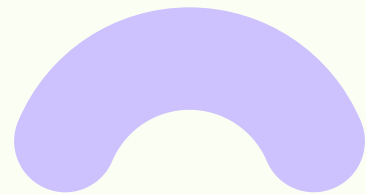
2

4
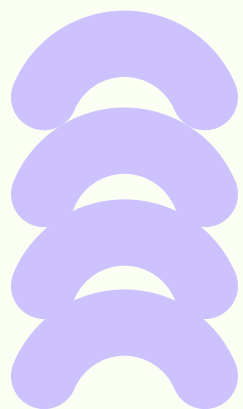
8

3
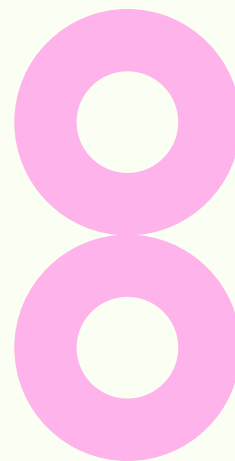
6

12

5

10

100

Practice your code. Write a fraction, and then write an equivalent fraction using your code dictionary.

2

$$\frac{1}{2} = \frac{2}{4}$$

4

$$\frac{2}{4} = \frac{4}{8}$$

8

$$\frac{1}{2} = \frac{4}{8}$$
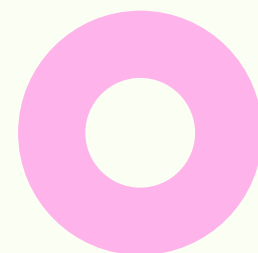
$$\frac{1}{5} = \frac{2}{10}$$
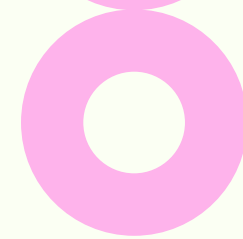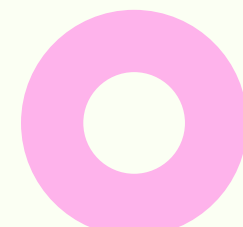
5

10

$$\frac{1}{5} = \frac{20}{100}$$

$$\frac{1}{10} = \frac{10}{100}$$

100
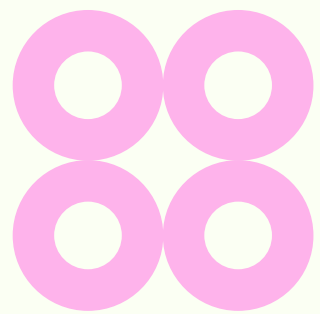
$$\frac{1}{3} = \frac{2}{6}$$

3

$$\frac{2}{6} = \frac{4}{12}$$

6

$$\frac{4}{6} = \frac{8}{12}$$

12