

Name _____

Describe and Create Fraction Patterns

Florida's B.E.S.T.

- Fractions 5.FR.2.1
- Algebraic Reasoning 5.AR.3.1
- Mathematical Thinking & Reasoning MTR.1.1, MTR.2.1, MTR.3.1

I Can use addition and subtraction to describe a pattern or create a sequence with fractions.

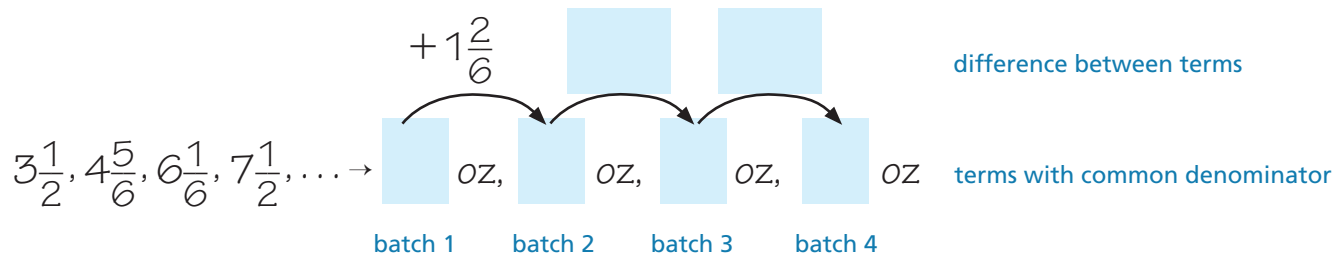


UNLOCK the Problem Real World

Mr. Patrick wants to develop a new chili recipe for his restaurant. Each batch he makes uses a different amount of chili powder. The first batch uses $3\frac{1}{2}$ ounces, the second batch uses $4\frac{5}{6}$ ounces, the third uses $6\frac{1}{6}$ ounces, and the fourth uses $7\frac{1}{2}$ ounces. If this pattern continues, how much chili powder will he use in the sixth batch?

You can find the pattern in a sequence by comparing one term with the next term.

STEP 1 Write the terms in the sequence as equivalent fractions with a common denominator. Then examine the sequence and compare the consecutive terms to find the rule used to make the sequence of fractions.



STEP 2 Write a rule that describes the pattern in the sequence.

- Is the sequence increasing or decreasing from one term to the next? Explain.

Rule: _____

STEP 3 Extend the sequence to solve the problem.

$$3\frac{1}{2}, 4\frac{5}{6}, 6\frac{1}{6}, 7\frac{1}{2}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

So, Mr. Patrick will use _____ ounces of chili powder in the sixth batch.



Examples Find the unknown terms in the sequence.

$$1\frac{3}{4}, 1\frac{9}{16}, 1\frac{3}{8}, 1\frac{3}{16}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \frac{7}{16}, \frac{1}{4}$$

STEP 1 Write the terms in the sequence as equivalent fractions with a common denominator.

$$\underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}, \underline{\hspace{1cm}}$$

STEP 2 Write a rule describing the pattern in the sequence.

- What operation can be used to describe a sequence that increases?

- What operation can be used to describe a sequence that decreases?

Rule: _____

STEP 3 Use your rule to find the unknown terms. Then complete the sequence.



MTR 4.1 Engage in discussions on mathematical thinking.

How do you know whether your rule for a sequence would involve addition or subtraction?

Try This!

- A** Write a rule for the sequence. Then find the unknown term.

$$1\frac{1}{12}, \frac{5}{6}, \underline{\hspace{1cm}}, \frac{1}{3}, \frac{1}{12}$$

Rule: _____

- B** Write the first four terms of the sequence.

Rule: start at $\frac{1}{4}$, add $\frac{3}{8}$
