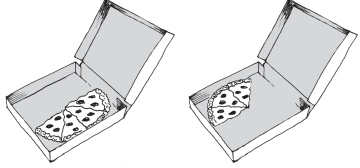



### Estimate Fraction Sums

**Estimate Fraction Sums with Circle Pieces**  
Mr. Moreno's class has  $\frac{1}{2}$  of a pizza left in one box and  $\frac{3}{8}$  of a pizza left in a second box.



- Mr. Moreno suggested that Kathy take home the leftover pizza. As she packed up the pizza, she wondered whether it would all fit in one box.
  - If the pieces are combined, will they make more or less than one pizza?
  - Use fraction circle pieces to model the problem. Is  $\frac{1}{2} + \frac{3}{8}$  more than 1 or less than 1? Explain your reasoning.
- Kathy and Romesh each received a large chocolate chip cookie. Each cookie was as large as a cake. Kathy gave her friend Irma  $\frac{1}{3}$  of her cookie. Later, Romesh gave Irma  $\frac{1}{4}$  of his cookie.
 
  - Did Irma receive more or less than  $\frac{1}{2}$  cookie altogether? How did you decide?
  - Use fraction circle pieces to model  $\frac{1}{3} + \frac{1}{4}$ . Is  $\frac{1}{3} + \frac{1}{4}$  more or less than  $\frac{1}{2}$ ?

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- Look at each problem. Decide if you think the sums are greater than or less than 1. Use fraction circle pieces to check your thinking.
 


A. $\frac{2}{3} + \frac{1}{8}$	B. $\frac{3}{10} + \frac{1}{10}$
C. $\frac{1}{4} + \frac{7}{8}$	D. $\frac{1}{10} + \frac{1}{10}$
E. $\frac{7}{8} + \frac{1}{6}$	F. $\frac{1}{10} + \frac{1}{10}$
G. $\frac{7}{8} + \frac{2}{3}$	H. $\frac{1}{4} + \frac{1}{10}$
- Look at each problem. Decide if you think the sums are greater than or less than  $\frac{1}{2}$ . Use fraction circle pieces to check your thinking.
 

A. $\frac{3}{4} + \frac{1}{8}$	B. $\frac{1}{10} + \frac{1}{10}$
C. $\frac{1}{2} + \frac{1}{4}$	D. $\frac{1}{10} + \frac{1}{10}$
E. $\frac{1}{6} + \frac{1}{4}$	F. $\frac{1}{10} + \frac{1}{10}$
G. $\frac{1}{3} + \frac{1}{3}$	H. $\frac{1}{10} + \frac{1}{10}$

**Use Strategies to Estimate Fraction Sums**  
Kathy did not have fraction circle pieces. This is how she figured out whether  $\frac{1}{2}$  pizza from one box and  $\frac{3}{8}$  pizza from the other box would fit in one box:

The first box has  $\frac{1}{2}$  pizza in it. It has room to put in one half more. I know  $\frac{3}{8}$  is less than half because it takes four eighths to make one half. So the  $\frac{3}{8}$  pizza from the other box will fit into the first box too. All the leftover pizza will fit into one box.

$$\frac{1}{2} = \frac{4}{8}; \frac{4}{8} + \frac{3}{8} = \frac{7}{8}; \frac{7}{8} < 1$$



**Use Kathy's strategy to solve the following problems.**

- Describe how you could solve Question 2A, about whether Irma ate more or less than  $\frac{1}{2}$  cookie, without using fraction circle pieces.
- Choose one of the problems in Question 3. Explain how you could solve the problem without using fraction circle pieces.
- Choose one of the problems in Question 4. Explain how you could solve the problem without using fraction circle pieces.

Use the *Estimate Fraction Sums with Number Lines* pages in the *Student Activity Book* for more practice estimating fraction sums.

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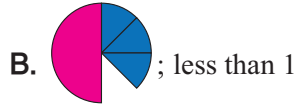
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\*Answers and/or discussion are included in the lesson.

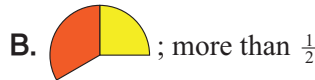
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Estimate Fraction Sums (SG pp. 86–88)  
Questions 1–9

1. A. less than 1 pizza; Possible response: I know that  $\frac{3}{8}$  is a little less than  $\frac{1}{2}$  because it takes  $\frac{4}{8}$  to equal  $\frac{1}{2}$ . That means that  $\frac{1}{2}$  pizza +  $\frac{3}{8}$  pizza will be a little less than 1 whole pizza.



2. A. more than  $\frac{1}{2}$  a cookie; Possible response: I thought about circle pieces. The yellow piece for  $\frac{1}{4}$  is smaller than the orange piece for  $\frac{1}{3}$ . If it takes only 2 yellow pieces to equal  $\frac{1}{2}$ , then 1 yellow and 1 orange will be bigger than  $\frac{1}{2}$ .



3. A.\*less than 1                      B. less than 1  
C.\*greater than 1                D. greater than 1  
E. greater than 1                F. less than 1  
G.\*greater than 1                H. less than 1

4. A. greater than  $\frac{1}{2}$                 B.\* less than  $\frac{1}{2}$   
C. greater than  $\frac{1}{2}$                 D. greater than  $\frac{1}{2}$   
E. less than  $\frac{1}{2}$                     F.\* greater than  $\frac{1}{2}$   
G. greater than  $\frac{1}{2}$                 H. greater than  $\frac{1}{2}$

5.\* Explanations may vary. I know  $\frac{1}{4} + \frac{1}{4} = \frac{1}{2}$ . I know  $\frac{1}{3}$  is greater than  $\frac{1}{4}$ , so I can say that  $\frac{1}{3} + \frac{1}{4}$  is greater than  $\frac{1}{2}$ .

6.\* Examples and explanations will vary. Possible response for A:  $\frac{2}{3} + \frac{1}{8}$  is less than 1 whole.  $\frac{3}{3} = 1$  whole. I already have  $\frac{2}{3}$ .  $\frac{1}{8}$  is smaller than  $\frac{1}{3}$ . So  $\frac{2}{3} + \frac{1}{8}$  is less than 1 whole.

7.\* Examples and explanations will vary. Possible response for F:  $\frac{1}{4} + \frac{1}{4}$  is exactly  $\frac{1}{2}$ . Thirds are greater than fourths. That means  $\frac{2}{3}$  is greater than  $\frac{1}{2}$ .

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Student Activity Book

Estimate Fraction Sums with Number Lines (SAB pp. 93–94)

Questions 1–5

Explanations will vary. One possible response is given for each.

1. No;  $\frac{1}{2} + \frac{2}{3}$  is a little over 1 yard of sequins.
- 2.\* No; If Maya walked  $\frac{2}{3}$  mile on Saturday, she would have to walk  $\frac{1}{3}$  mile on Sunday to make a full mile. She walked  $\frac{1}{6}$  mile.  $\frac{1}{6}$  is less than  $\frac{1}{3}$ , so she walked less than 1 mile.
- 3.\* less than  $\frac{1}{2}$  the bar.  $\frac{1}{6} = \frac{2}{12}$ ,  $\frac{1}{4} = \frac{3}{12}$ ;  $\frac{3}{12} + \frac{2}{12} = \frac{5}{12}$  and  $\frac{5}{12}$  is less than  $\frac{1}{2}$ .
4. more than 4 cups;  $2 + 1 = 3$ ;  $\frac{3}{4} + \frac{1}{2}$  is greater than one.
5. A. less than 1  
 B. greater than 1  
 C. less than 1  
 D. Possible response:  $\frac{11}{12}$  is  $\frac{1}{12}$  away from 1.  $\frac{1}{8}$  is greater than  $\frac{1}{12}$ , so  $\frac{11}{12} + \frac{1}{8}$  is greater than 1.

Name \_\_\_\_\_ Date \_\_\_\_\_

### Estimate Fraction Sums with Number Lines

Use the number lines to solve these problems.

1. At the fabric store, sequins are sold in long strips wrapped on spools. Linda's mother needs 2 yards of sequins to make costumes for the skating show. She found  $\frac{1}{2}$  yard of sequins remaining on one spool and  $\frac{2}{3}$  yard of sequins remaining on another spool. Did Linda's mother find enough sequins for the costumes? Explain your reasoning.

2. Maya walked  $\frac{2}{3}$  of a mile on Saturday. She walked  $\frac{1}{6}$  of a mile on Sunday. Did she walk a full mile altogether? Explain how you decided.
 

How can I show sixths on my number line?

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Name \_\_\_\_\_ Date \_\_\_\_\_

3. Keenya divided a candy bar into 12 equal parts. She ate  $\frac{1}{6}$  of the candy bar on Wednesday. She ate  $\frac{1}{4}$  of the candy bar on Thursday. Did she eat more or less than of the candy bar? Explain your reasoning.
4. Luis made cookies with his mother. He used  $2\frac{3}{4}$  cups of flour in the sugar cookie recipe and  $1\frac{1}{2}$  cups of flour in the oatmeal cookie recipe. Did he use more or less than 4 cups of flour altogether? Show or tell how you decided.
5. Estimate the sums for each problem. Decide if the sum will be greater or less than one.
 

A.  $\frac{1}{2} + \frac{2}{5}$

B.  $\frac{1}{8} + \frac{11}{12}$

C.  $\frac{1}{6} + \frac{5}{12}$
- D. Explain your reasoning for Question 5B.

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\*Answers and/or discussion are included in the lesson.