

# Close Ties

## Activity

Alice, Kimiora, and Ruth have to decide whether the fractions they have been given are closer to 0,  $\frac{1}{2}$ , or 1.

1. Which people are right in these conversations? Explain why.

a.  $\frac{45}{98}$

Double 45 is 90.  
I think  $\frac{45}{98}$  is closer to  $\frac{1}{2}$ .

$\frac{98}{98}$  is the same as 1.  
 $98 - 45 = 53$ , so  $\frac{45}{98}$  is much smaller than 1.  
So I think  $\frac{45}{98}$  is probably closer to 0.

$\frac{45}{100}$  is 0.45.  
That's close to 0.5, which is  $\frac{1}{2}$ .  
So  $\frac{45}{98}$  is closer to  $\frac{1}{2}$ .

b.  $\frac{999}{10\ 000}$

The top number is very large,  
so the fraction is large.  
It's way bigger than 1.

The big number on  
the bottom makes the  
fraction smaller,  
so  $\frac{999}{10\ 000}$  is closer to 0.

10 000 is 1 000 multiplied by 10.  
So  $\frac{1\ 000}{10\ 000}$  is  $\frac{1}{10}$ .  
I think  $\frac{999}{10\ 000}$  is closer to 0.

2. What things do you look at to decide if a fraction is closer to 0,  $\frac{1}{2}$ , or 1?

3. For each of these fractions, decide whether it is closer to 0,  $\frac{1}{2}$ , or 1:

a.  $\frac{12}{13}$

b.  $\frac{499}{1001}$

c.  $\frac{37}{911}$

d.  $\frac{48}{43}$

4. Ruth, Alice, and Kimiora are deciding whether the answer to  $\frac{7}{16} + \frac{1}{2}$  is smaller, equal to, or greater than 1. Whose thinking do you agree with? Explain why.

I know  $\frac{1}{2} + \frac{1}{2} = 1$ .

All we need to work out is whether  $\frac{7}{16}$  is smaller or larger than  $\frac{1}{2}$ .

Ruth



$\frac{1}{2}$  is the same as  $\frac{8}{16}$ .

$8 + 7 = 15$ , so the answer is  $\frac{15}{16}$ .

Hmm ... is that bigger or smaller than 1?

Alice



I think  $\frac{7}{16} + \frac{1}{2} = \frac{8}{18}$ . That's close to  $\frac{9}{18}$ , which is  $\frac{1}{2}$ .

Kimiora



5. Is the answer to  $\frac{2}{5} + \frac{6}{10}$  smaller, equal to, or greater than 1? Explain your answer.

