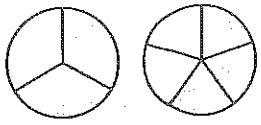
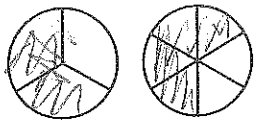
NS8-15 Equivalent Fractions

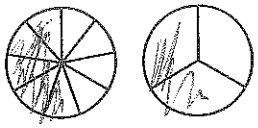
1. Compare the fractions by shading to see which is more. Write > (more than), < (less than), or = (equal).

a) 

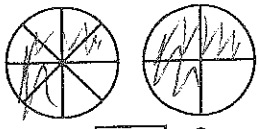
$\frac{2}{3}$ > $\frac{3}{5}$

b) 

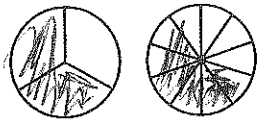
$\frac{2}{3}$ = $\frac{4}{6}$

c) 

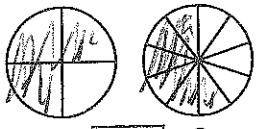
$\frac{5}{9}$ < $\frac{2}{3}$

d) 

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

e) 

$\frac{2}{3}$ < $\frac{7}{10}$

f) 

$\frac{3}{4}$ > $\frac{6}{10}$

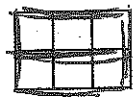
Two fractions are said to be **equivalent** if they represent the same amount.

2. List two pairs of equivalent fractions from Question 1. $\frac{2}{3} = \frac{4}{6}$ and $\frac{6}{8} = \frac{3}{4}$

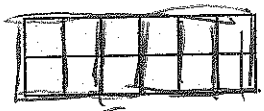
3. Group the squares to make an equivalent fraction. How many of the equal larger groups are shaded?

a) 

$\frac{6}{10} = \frac{3}{5}$

b) 

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

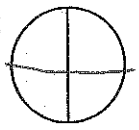
c) 

$\frac{10}{12} = \frac{5}{6}$

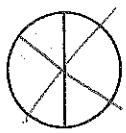
4. Write three equivalent fractions for the amount shaded here: 

$\frac{4}{8}$ $\frac{2}{4}$ $\frac{1}{2}$

5. a) Draw lines to cut the pies into:



4 equal pieces



6 equal pieces

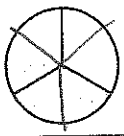
8 equal pieces

b) Then fill in the numerators of the equivalent fractions: $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$

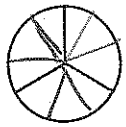
6. Make an equivalent fraction by cutting each piece into the same number of parts.

a) $\frac{1}{2} = \frac{3}{6}$

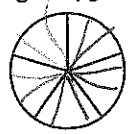
b) $\frac{2}{3} = \frac{4}{6}$



c) $\frac{2}{3} = \frac{6}{9}$



d) $\frac{2}{5} = \frac{6}{15}$



NS8-16 Comparing Fractions Using Equivalent Fractions

1. Write six equivalent fractions by skip counting to find the numerators.

a) $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12} = \frac{10}{15} = \frac{12}{18} = \frac{14}{21}$

b) $\frac{3}{5} = \frac{6}{10} = \frac{9}{15} = \frac{12}{20} = \frac{15}{25} = \frac{16}{30} = \frac{21}{35}$

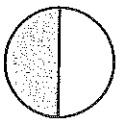
2. Find two fractions with the same denominators from the lists in Question 1. $\frac{10}{15}$ and $\frac{9}{15}$

Which fraction is greater: $\frac{2}{3}$ or $\frac{3}{5}$? $\frac{2}{3}$

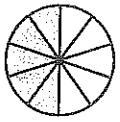
How do you know? $\frac{2}{3} = \frac{10}{15}$, $\frac{3}{5} = \frac{9}{15}$, $\frac{2}{3}$ is greater.

When you multiply the numerator and denominator of a fraction by the same number, you create an **equivalent fraction**.

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



You are cutting each piece into 5 parts



3. Create an equivalent fraction with denominator 36 by multiplying the numerator and denominator by the same number:

a) $\frac{1}{2} \times 18 = \frac{18}{36}$ b) $\frac{4}{9} \times 4 = \frac{16}{36}$ c) $\frac{5}{6} \times 6 = \frac{30}{36}$ d) $\frac{11}{18} \times 2 = \frac{22}{36}$

e) $\frac{2}{3} \times 12 = \frac{24}{36}$ f) $\frac{3}{4} \times 9 = \frac{27}{36}$ g) $\frac{1}{6} \times 6 = \frac{6}{36}$ h) $\frac{5}{12} \times 3 = \frac{15}{36}$

4. Write the fractions from Question 3 in order from smallest to largest.

$\frac{1}{6}, \frac{5}{12}, \frac{4}{9}, \frac{1}{2}, \frac{11}{18}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$

5. a) Write several fractions equivalent to $\frac{1}{2}$.

$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12} = \frac{7}{14} = \frac{8}{16} = \frac{9}{18} = \frac{10}{20}$

b) How much more than a half is each fraction below?

$\frac{3}{4}$ is $\frac{1}{4}$ more than $\frac{1}{2}$ $\frac{4}{6}$ is $\frac{1}{6}$ more than $\frac{1}{2}$ $\frac{5}{8}$ is $\frac{1}{8}$ more than $\frac{1}{2}$

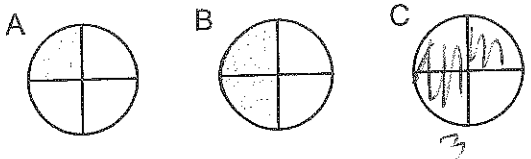
$\frac{6}{10}$ is $\frac{1}{5}$ more than $\frac{1}{2}$ $\frac{7}{12}$ is $\frac{1}{12}$ more than $\frac{1}{2}$ $\frac{8}{14}$ is $\frac{1}{14}$ more than $\frac{1}{2}$

c) Write all the given fractions from part b) in order from smallest to largest.

$\frac{5}{14}, \frac{7}{12}, \frac{6}{10}, \frac{5}{8}, \frac{4}{6}, \frac{3}{4}$

NS8-17 Adding and Subtracting Fractions — Introduction

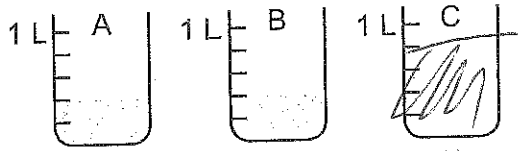
1. Imagine moving the shaded pieces from pies A and B into pie plate C.
Show how much of pie C would be filled, then write a fraction for pie C.



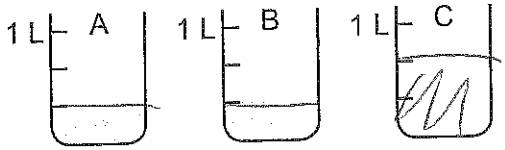
$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$

2. Imagine pouring the liquid from cups A and B into cup C.

Shade the amount of liquid that would be in C. Then complete the addition statements.



$\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$



$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$

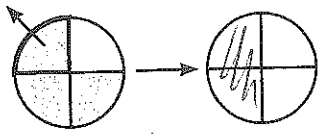
3. Add.

a) $\frac{3}{5}+\frac{1}{5}=\frac{4}{5}$ b) $\frac{1}{4}+\frac{2}{4}=\frac{3}{4}$ c) $\frac{2}{7}+\frac{4}{7}=\frac{6}{7}$ d) $\frac{5}{8}+\frac{2}{8}=\frac{7}{8}$

e) $\frac{3}{11}+\frac{6}{11}=\frac{9}{11}$ f) $\frac{10}{17}+\frac{6}{17}=\frac{16}{17}$ g) $\frac{15}{24}+\frac{4}{24}=\frac{19}{24}$ h) $\frac{18}{57}+\frac{13}{57}=\frac{31}{57}$

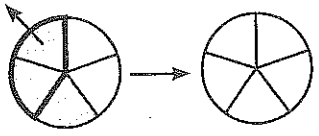
4. Show how much pie would be left if you took away the amount shown.
Then complete the fraction statement.

a)



$\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$

b)



$\frac{3}{5} - \frac{2}{5} = \frac{1}{5}$

5. Subtract.

a) $\frac{2}{3}-\frac{1}{3}=\frac{1}{3}$ b) $\frac{3}{5}-\frac{2}{5}=\frac{1}{5}$ c) $\frac{6}{7}-\frac{3}{7}=\frac{3}{7}$ d) $\frac{5}{8}-\frac{2}{8}=\frac{3}{8}$

e) $\frac{10}{12}-\frac{3}{12}=\frac{7}{12}$ f) $\frac{6}{19}-\frac{4}{19}=\frac{2}{19}$ g) $\frac{9}{28}-\frac{3}{28}=\frac{6}{28}$ h) $\frac{17}{57}-\frac{12}{57}=\frac{5}{57}$

6. Calculate.

a) $\frac{2}{7}+\frac{1}{7}+\frac{3}{7}=\frac{6}{7}$ b) $\frac{4}{11}+\frac{5}{11}-\frac{2}{11}=\frac{7}{11}$ c) $\frac{10}{18}-\frac{7}{18}+\frac{5}{18}=\frac{8}{18}$