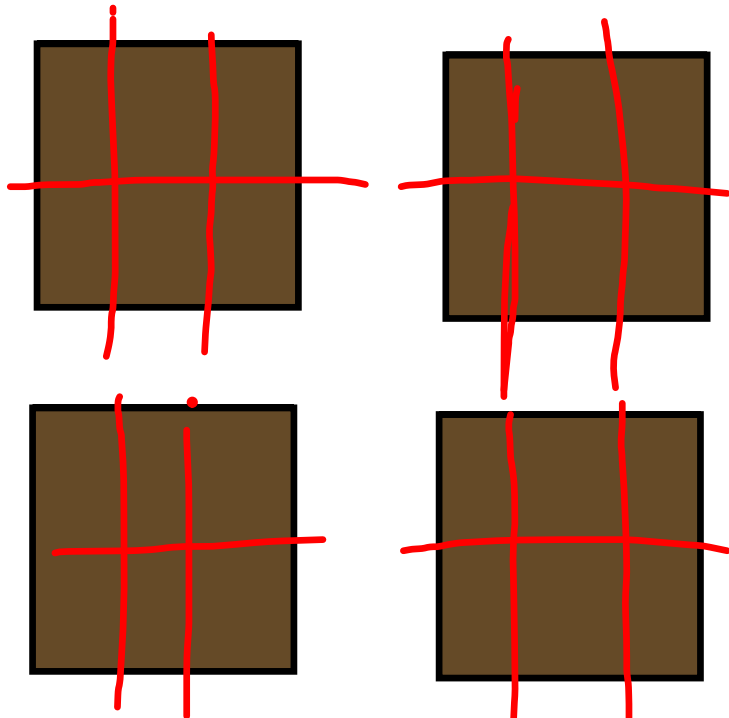
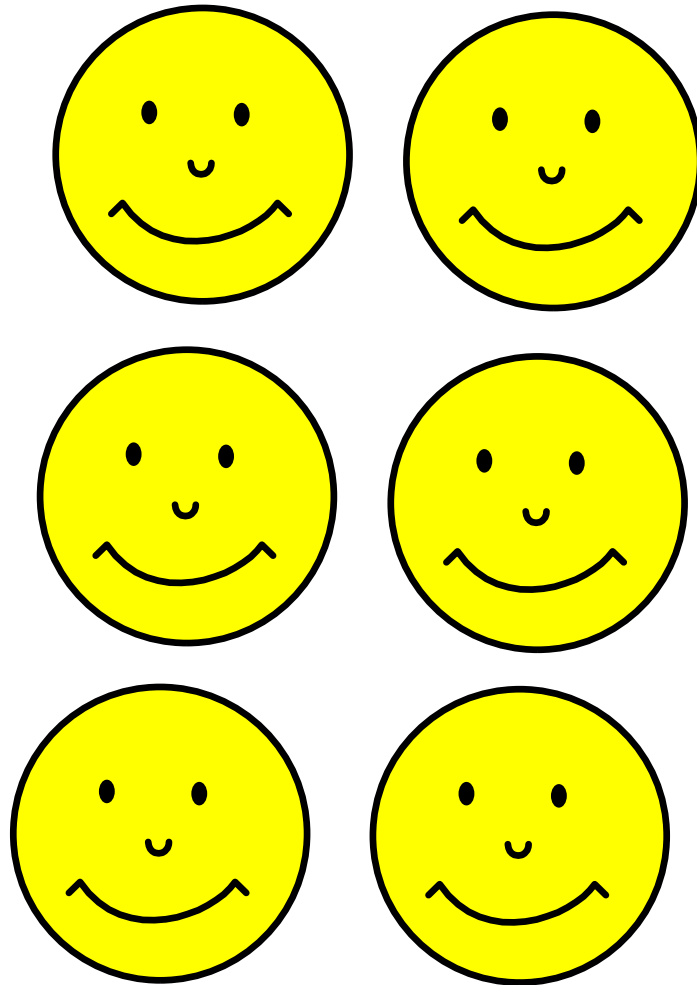


4 brownies are to be shared by 6 people.

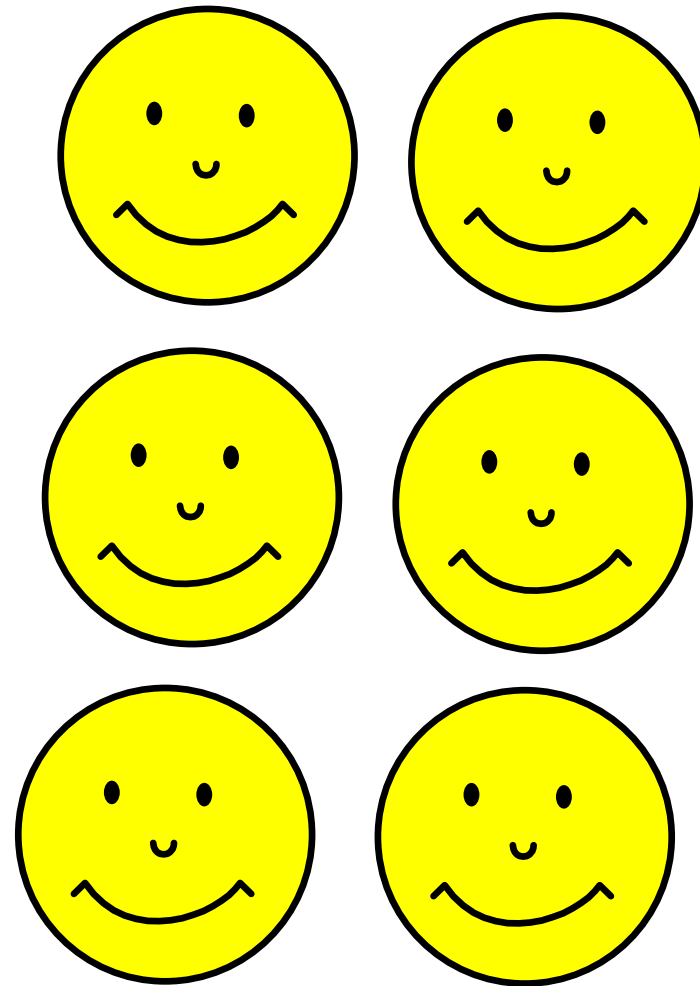
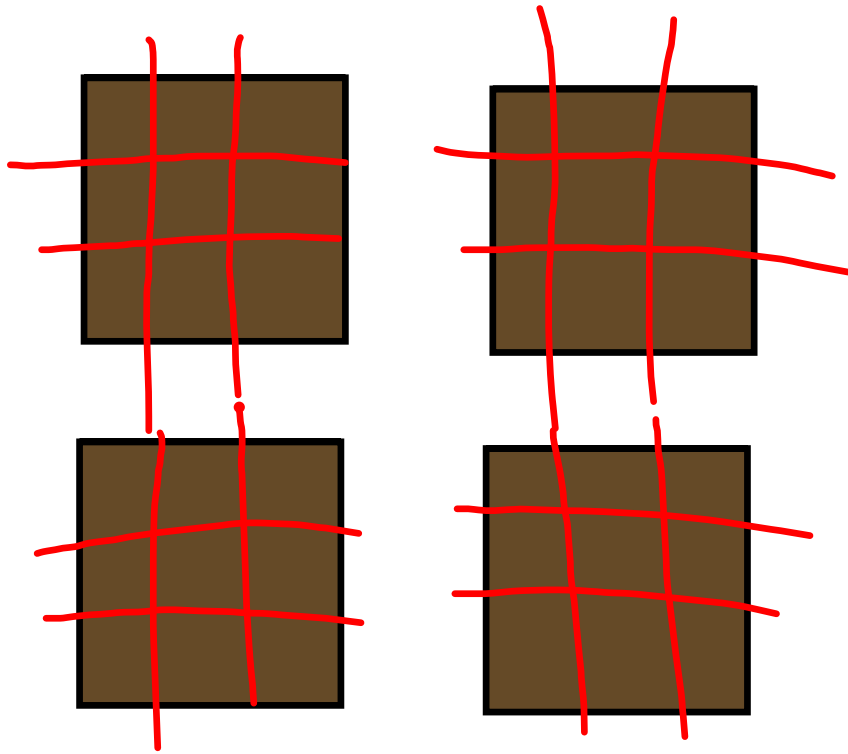


$$24 \times \frac{1}{6}$$

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

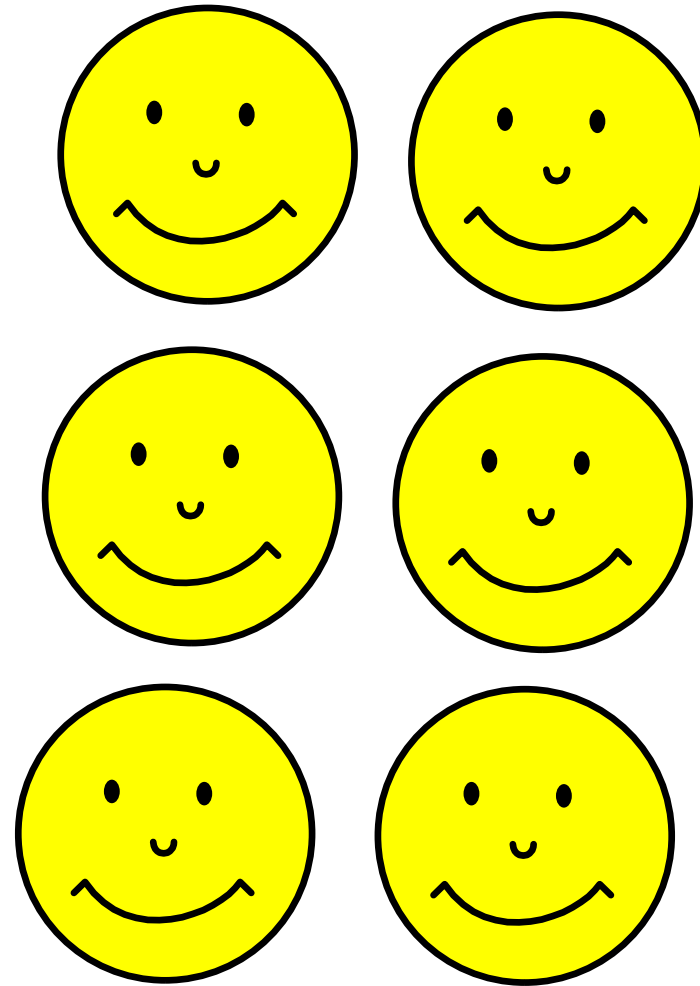
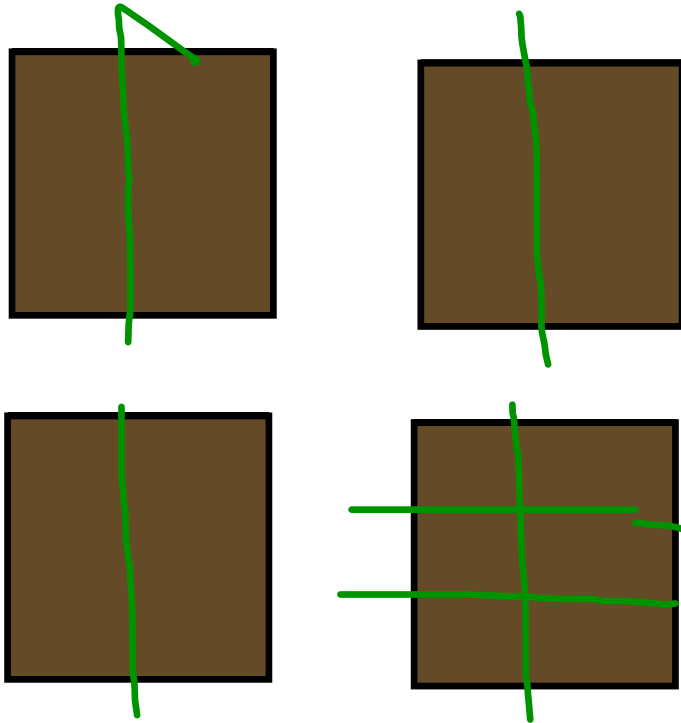


4 brownies are to be shared by 6 people.



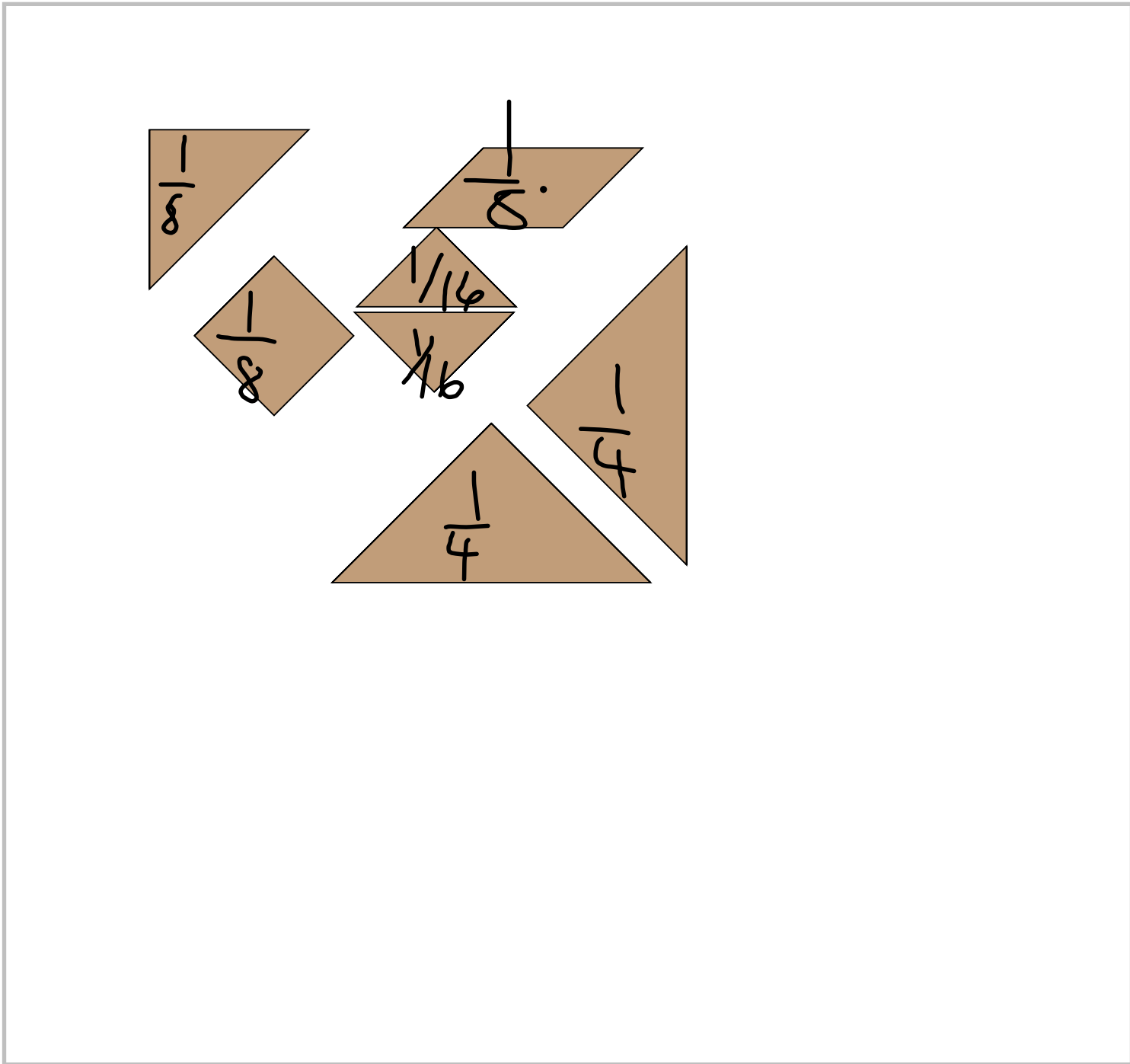
$$6 \times 6 = 36$$
$$4 \times 9 = 36$$

4 brownies are to be shared by 6 people.

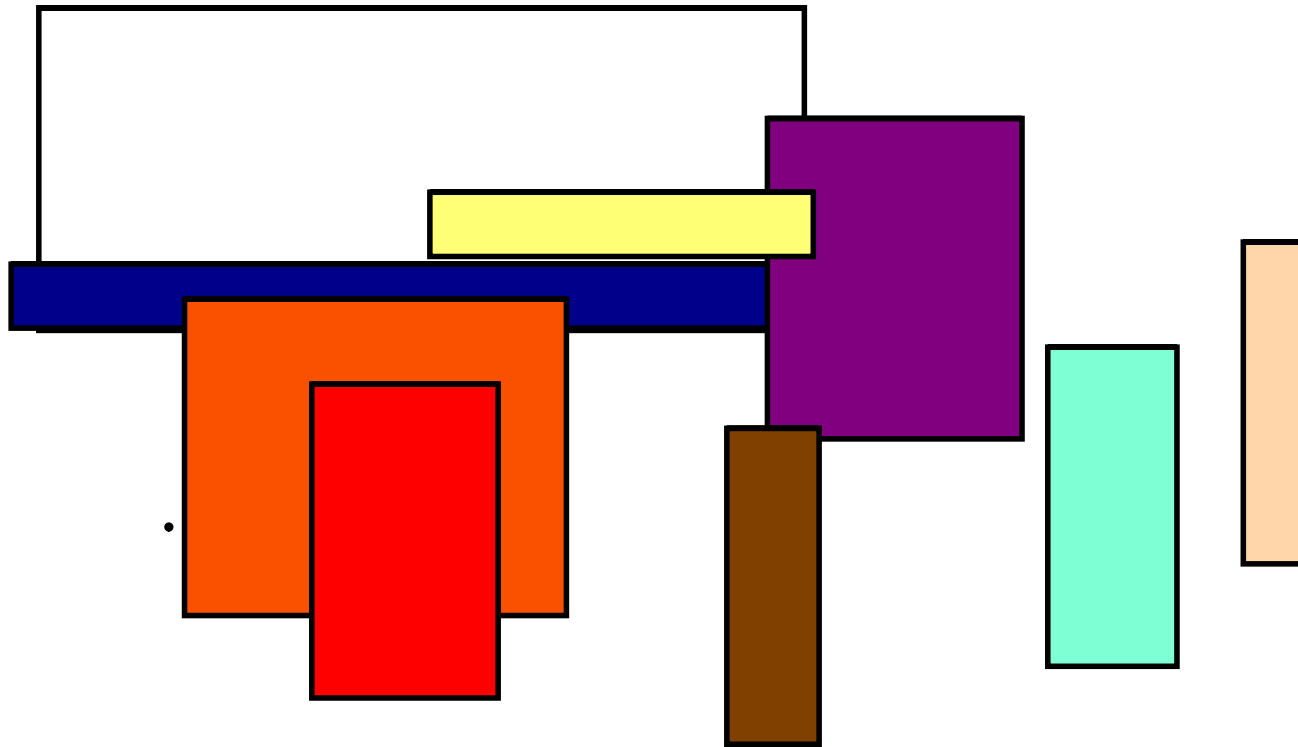


Kevin gets =  $\frac{1}{2} + \frac{1}{6}$

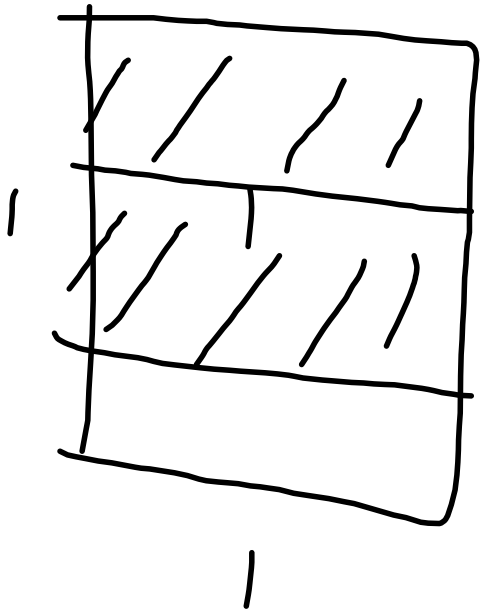
4 brownies are to be shared by 6 people.



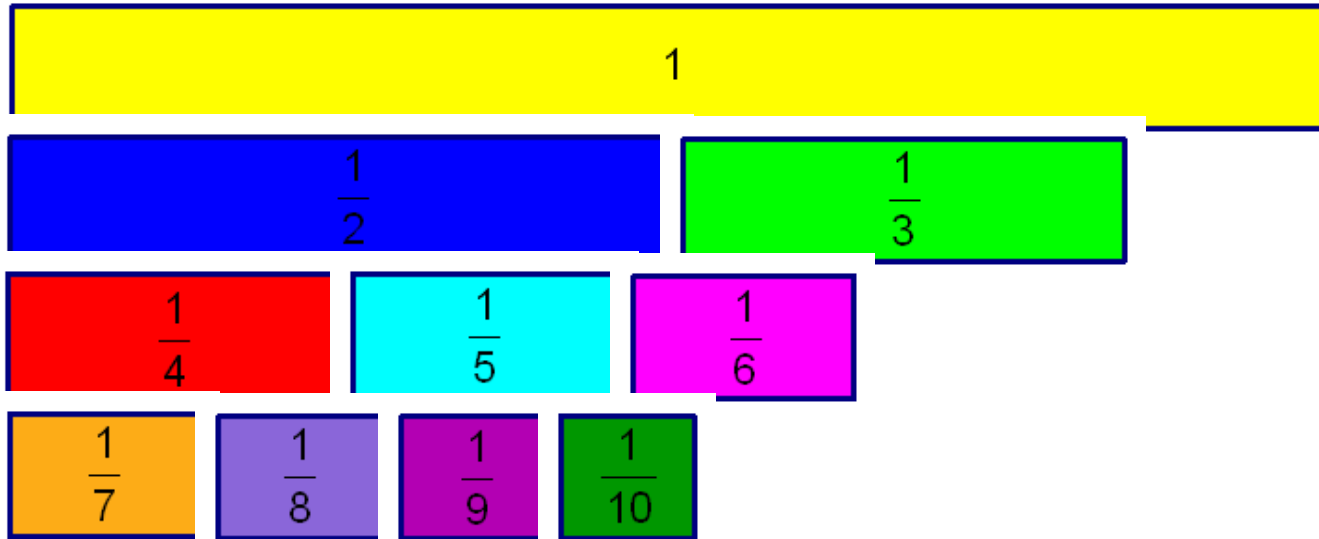
# Fraction Factory



2/2  
3/3

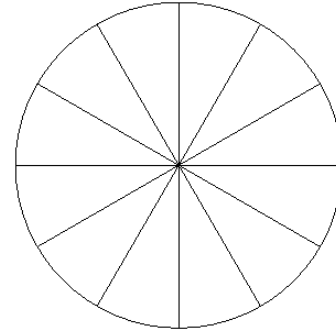
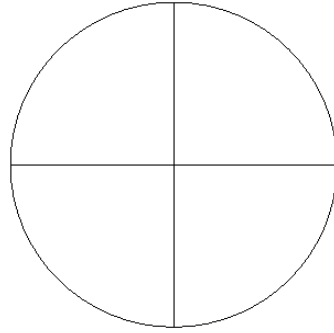
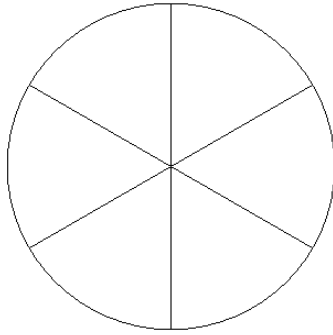


# Fraction Strips

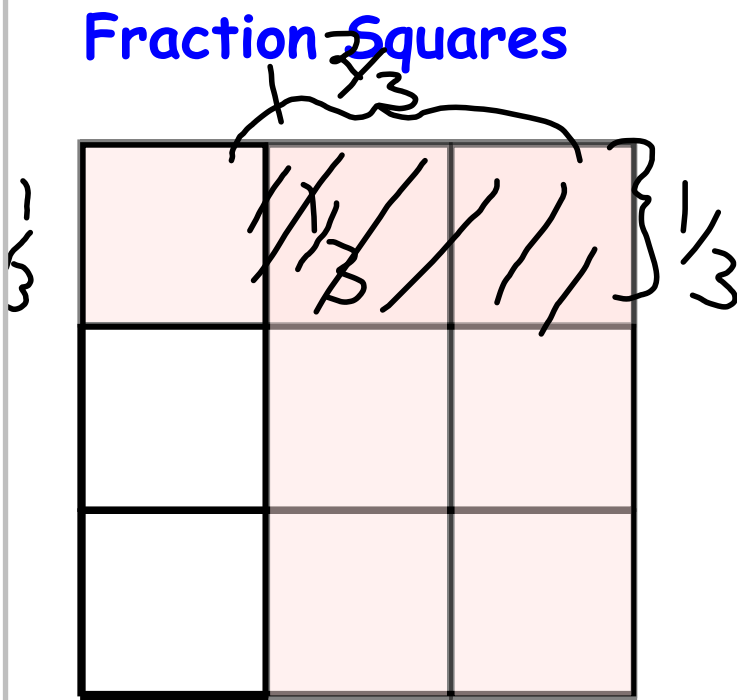




# Fraction Circles



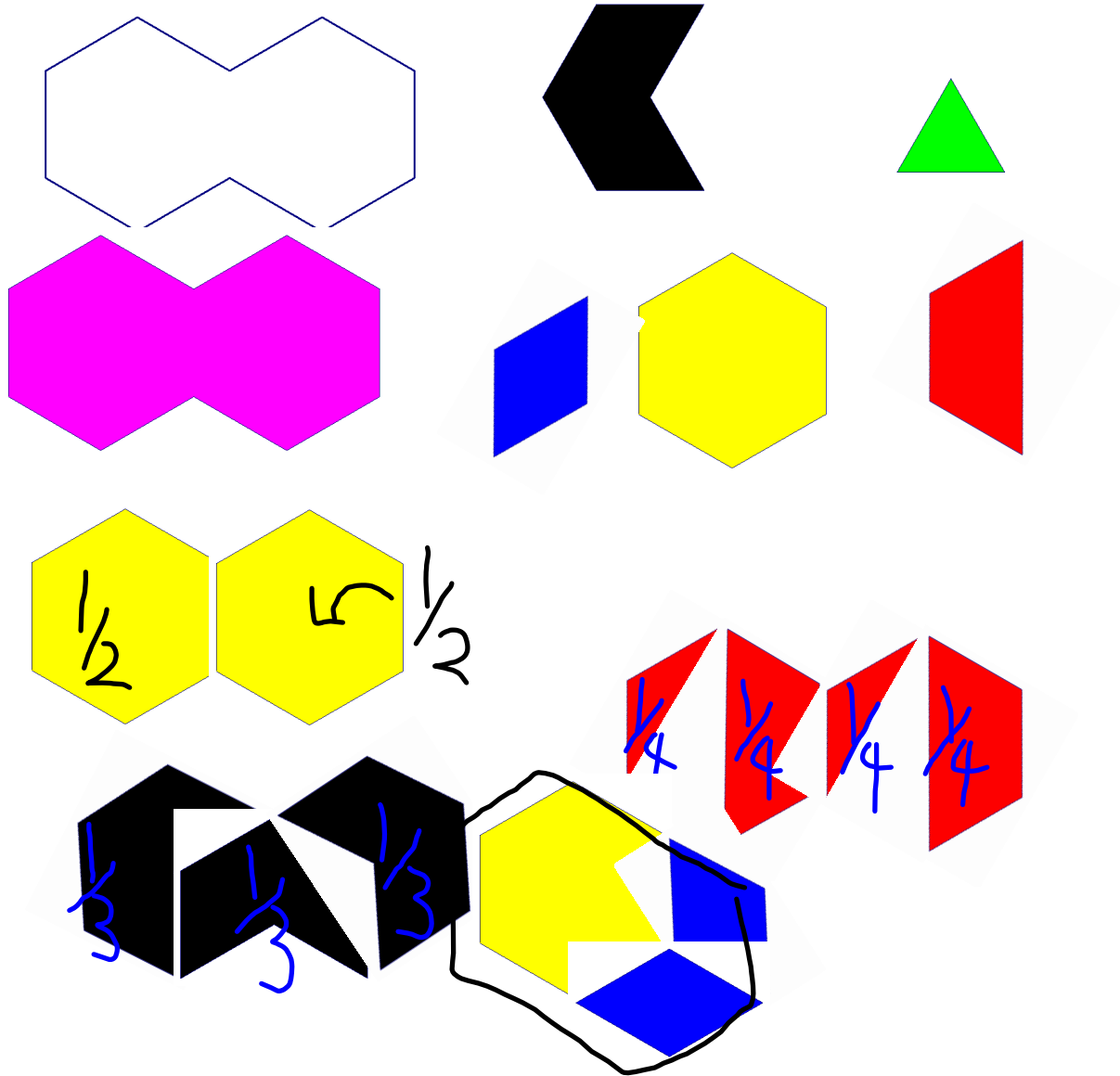
# Fraction Squares

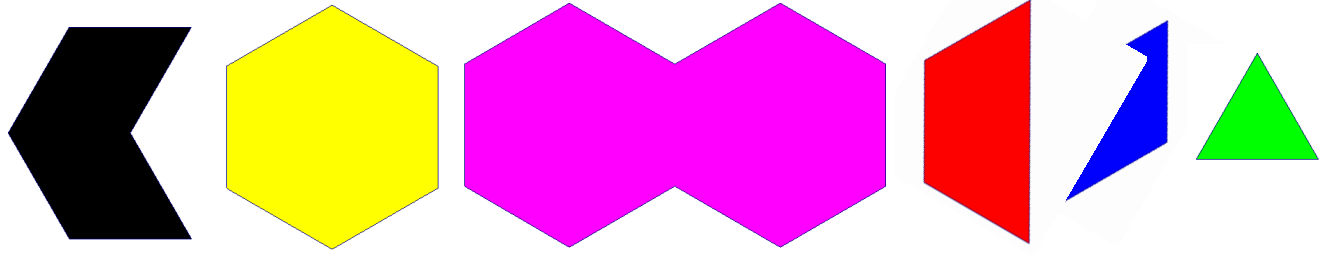


$\frac{2}{3}$

$\frac{2}{3}$

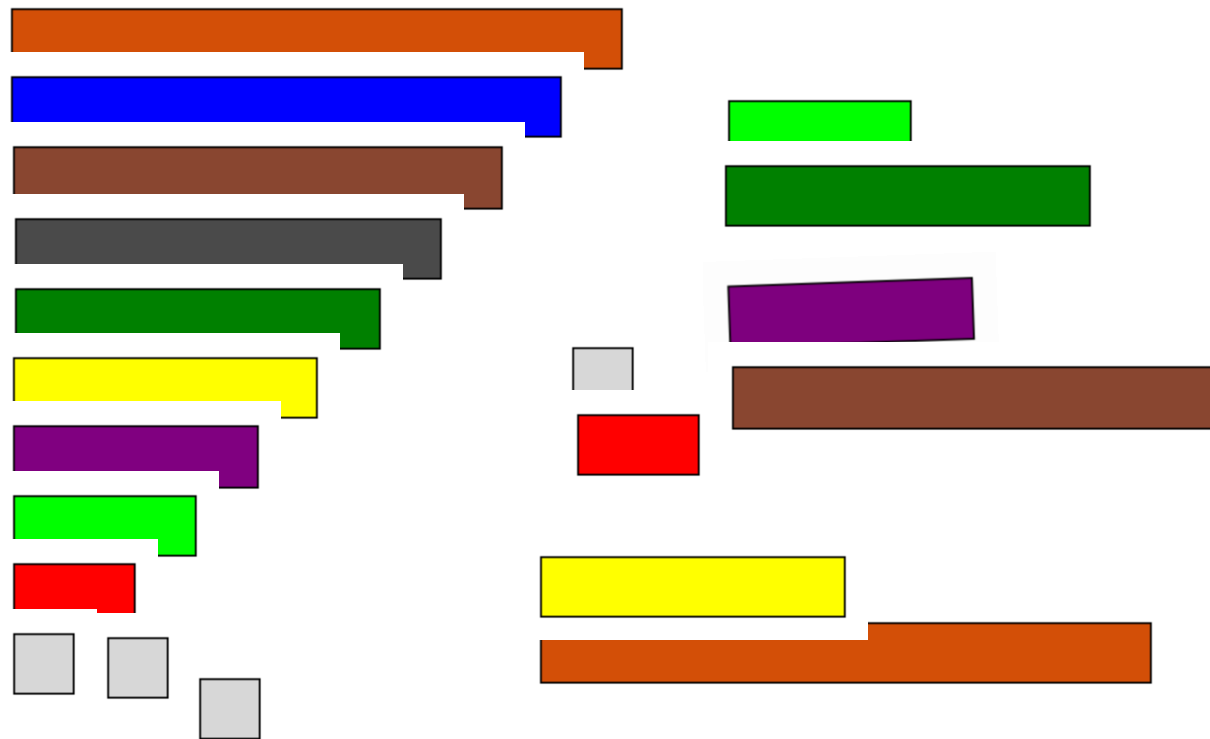
# Pattern Blocks and Fraction Blocks





If  = 1, what is the name of every other piece?

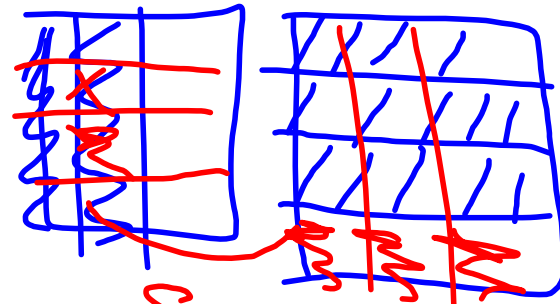
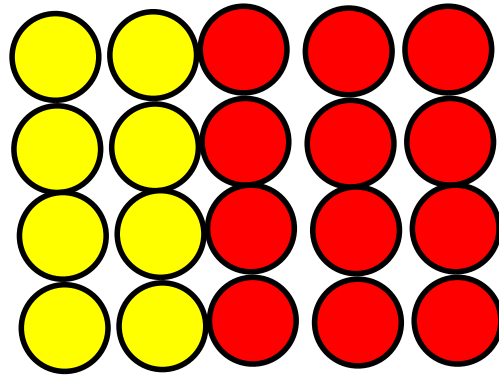
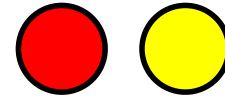
# Cuisenaire Rods



How can we show  $1/2$ ?



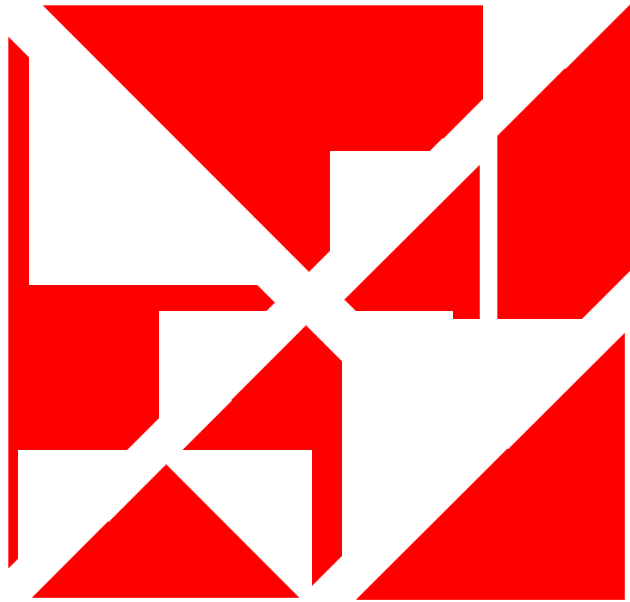
# Set Models



How can we show  $\frac{2}{5}$ ?

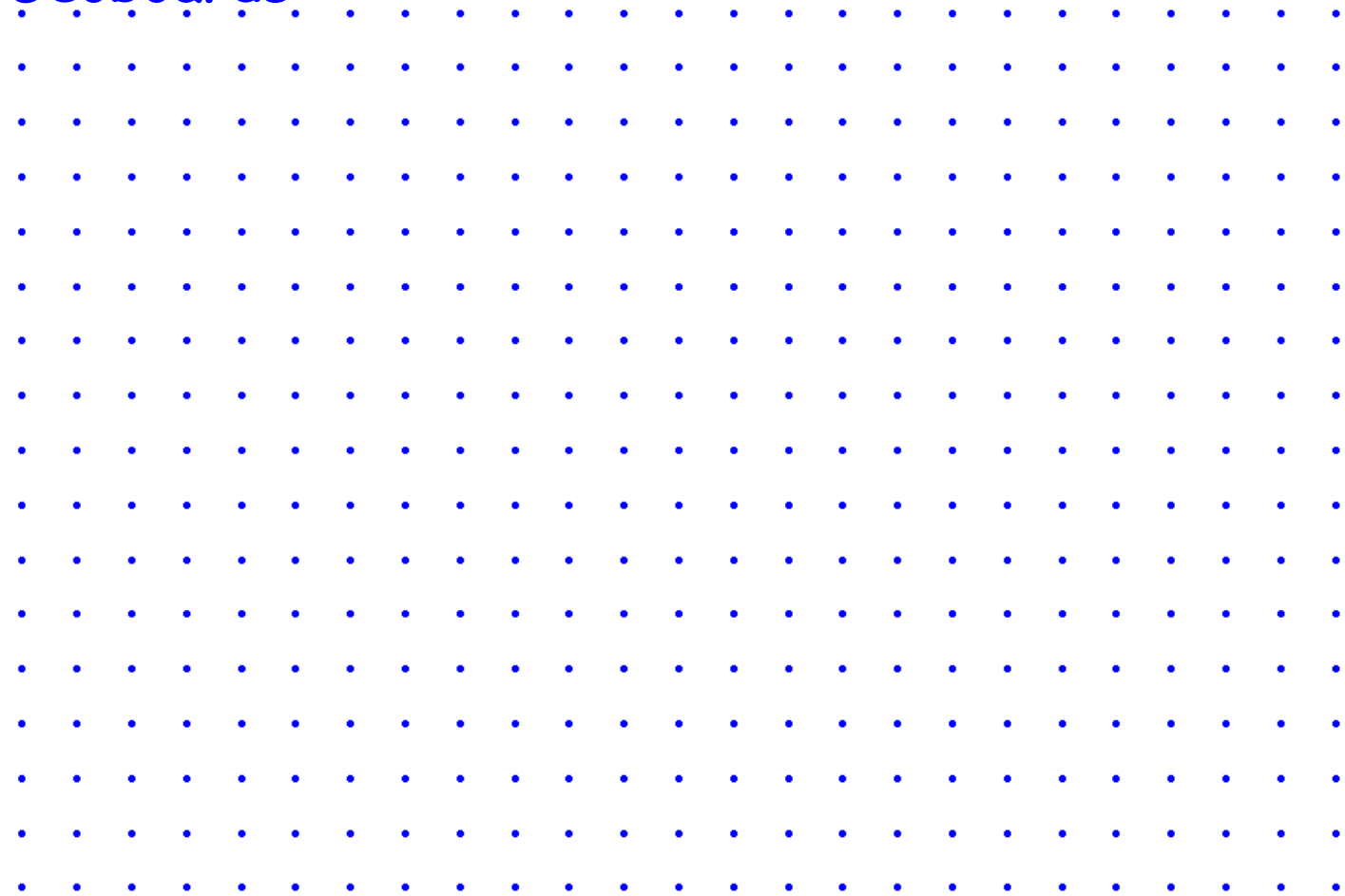
$$\frac{2}{5} + \frac{3}{5} = 1$$

$$\frac{2}{2} + \frac{9}{12} = \frac{5}{12}$$



Set objects do not need to be equal in size. For example, the square is not  $1/7$  of the area but it is  $1/7$  of the set of tangram pieces.

# Geoboards



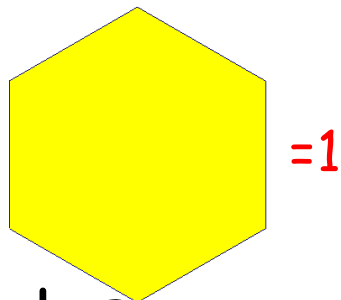
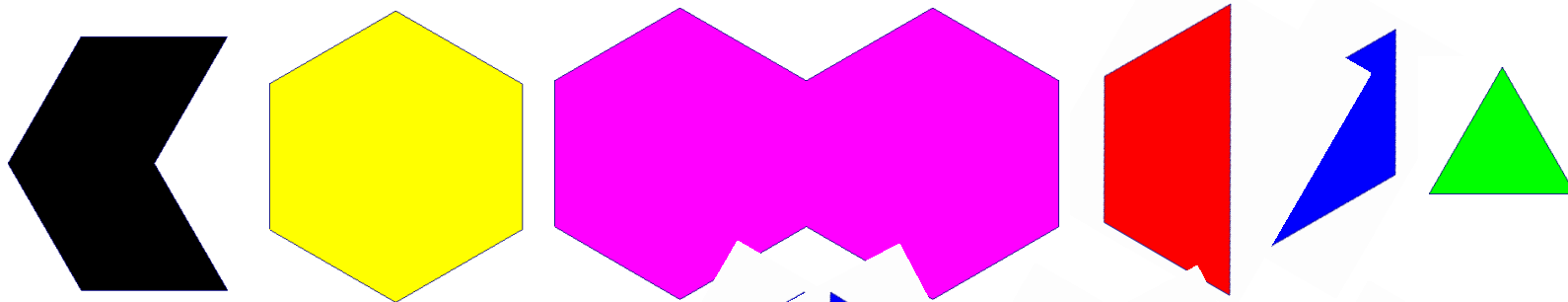
How can we show  $3/4$ ?

$$\frac{1}{4}$$



2/2

$$1 \frac{1}{2}$$



$$\sqrt[2]{\frac{1}{2}} = \frac{1}{\sqrt{2}}$$

$$\frac{8}{3}$$

$$= \frac{2}{3} \sqrt{2}$$



$$\frac{9}{2}$$



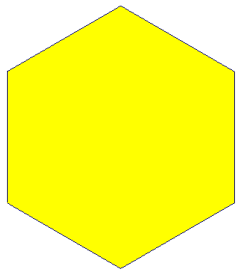
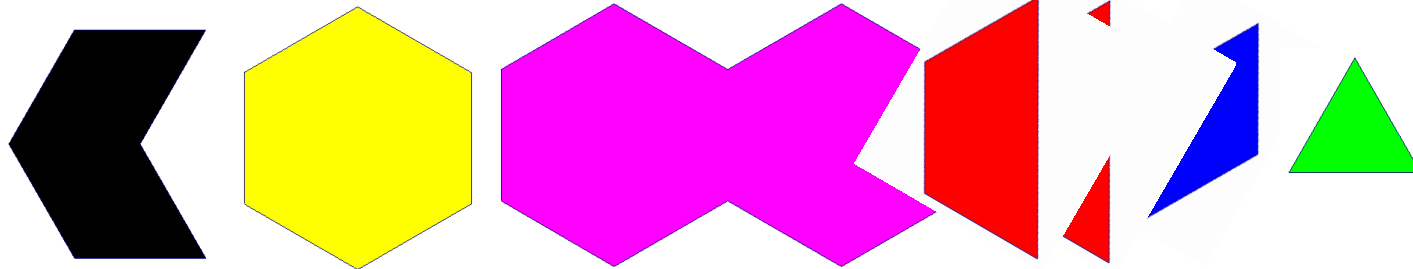
$$\frac{5}{3}$$

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

$$\frac{13}{6}$$

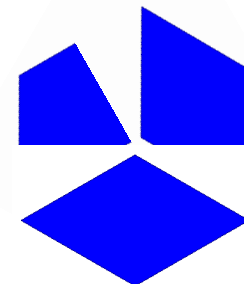
$$\frac{5}{3} \sqrt{3}$$





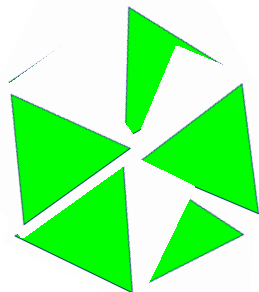
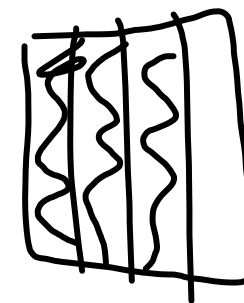
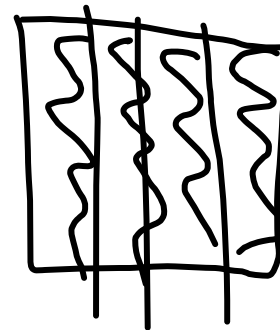
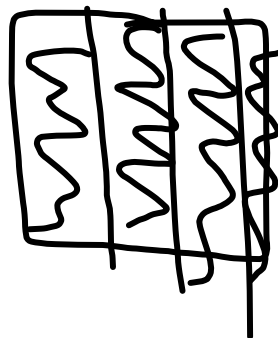
=1

$$4\frac{1}{3} = \frac{13}{3}$$

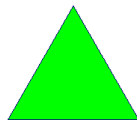


$$\frac{11}{4} =$$

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

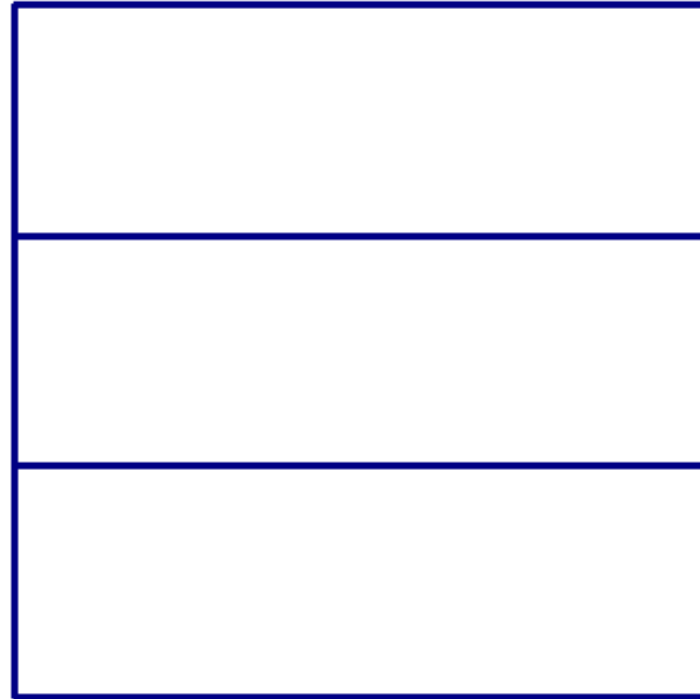
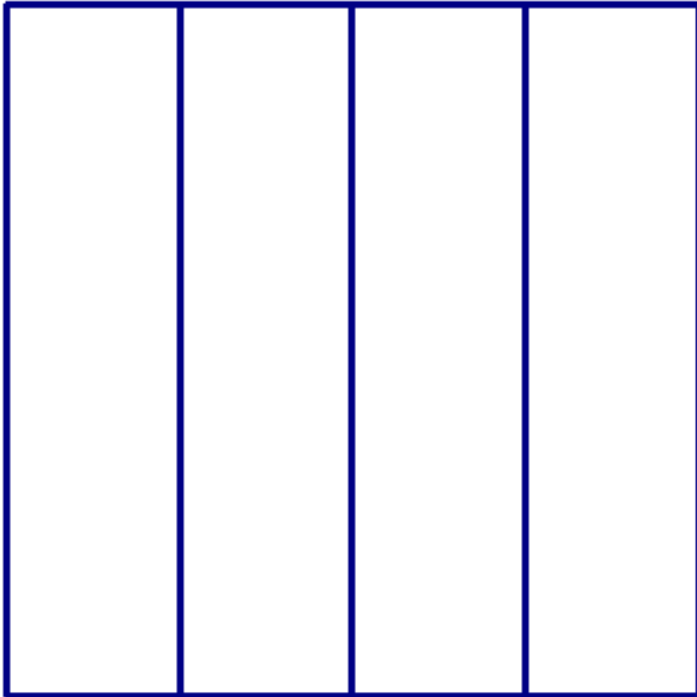


$$5\frac{1}{6} = \frac{31}{6}$$

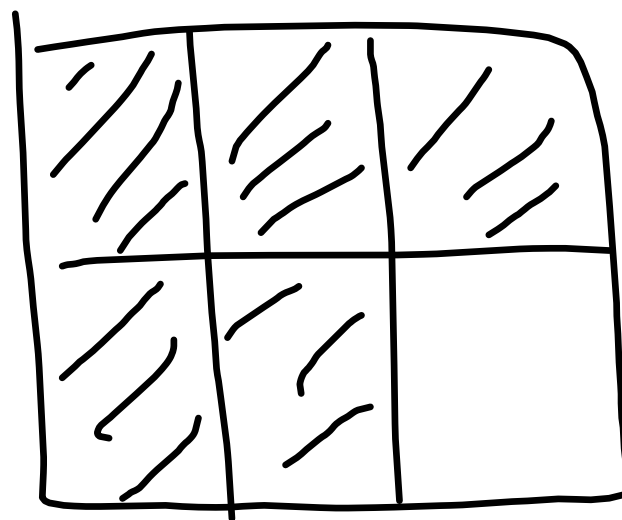
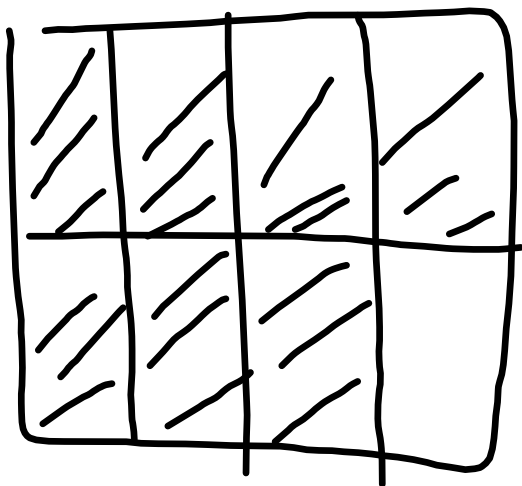


$$2\frac{3}{7} = \frac{17}{7}$$

$$\frac{1}{3} > \frac{1}{4}$$

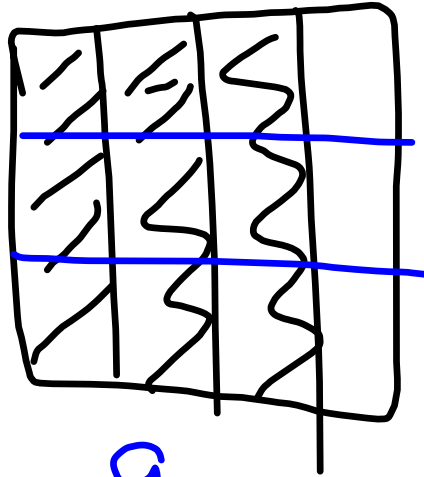


$$\frac{7}{8} > \frac{6}{9}$$



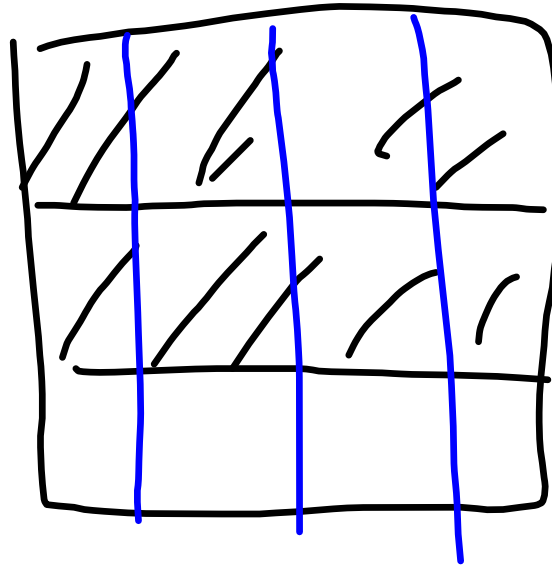
$\frac{3}{4} >$

$\frac{2}{3}$

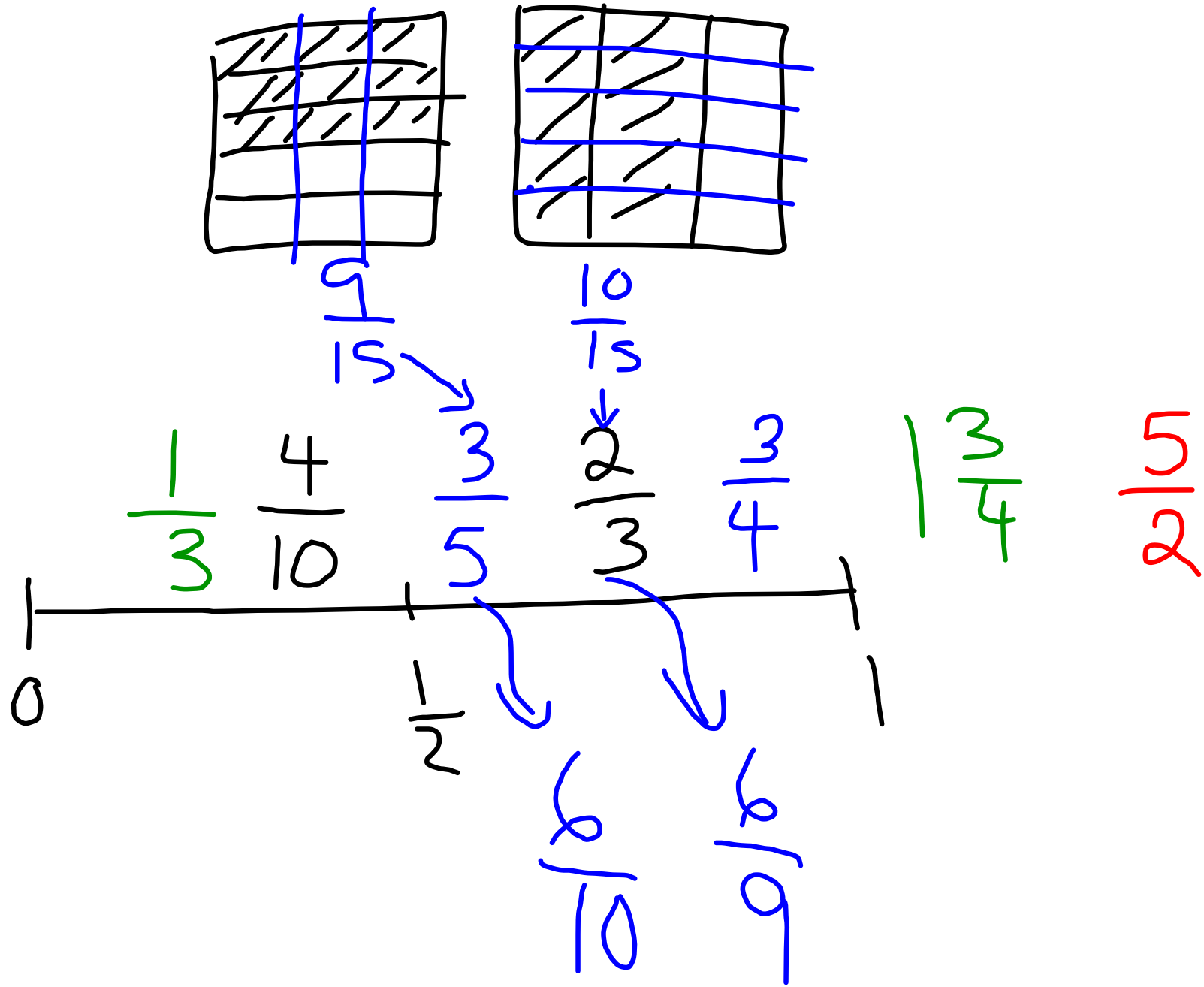


$\frac{2}{3}$

$>$



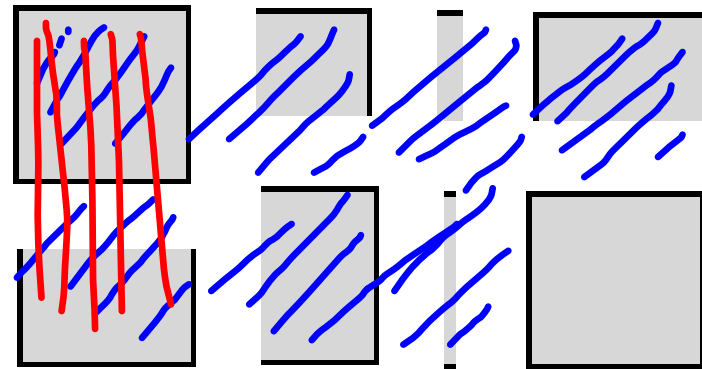
$\frac{2}{3}$





1) In His first two hockey games of the season, Kent played a total time of about  $1\frac{1}{4}$  periods and about  $1\frac{2}{3}$  periods. How many periods did he play in all?

2) Mary had  $\frac{7}{8}$  kg of sugar. She used  $\frac{1}{4}$  kg of it to make some cookies. How much sugar does she have left?



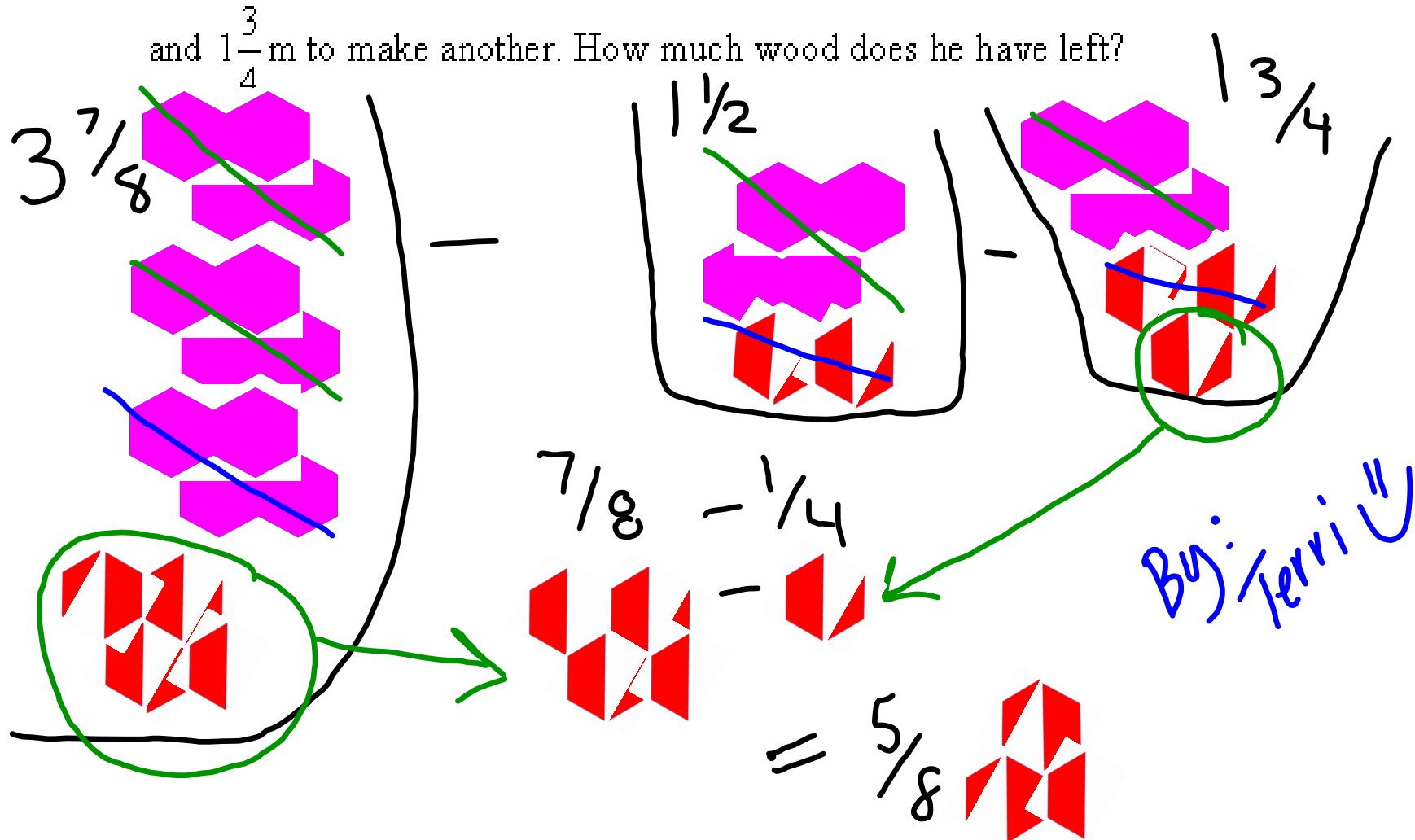
$\frac{5}{8}$  kg left

3) Kyla has begun a new walking program. She is keeping track of how far she walks each day. Her first three days are given in the chart below. How far has she walked in all?

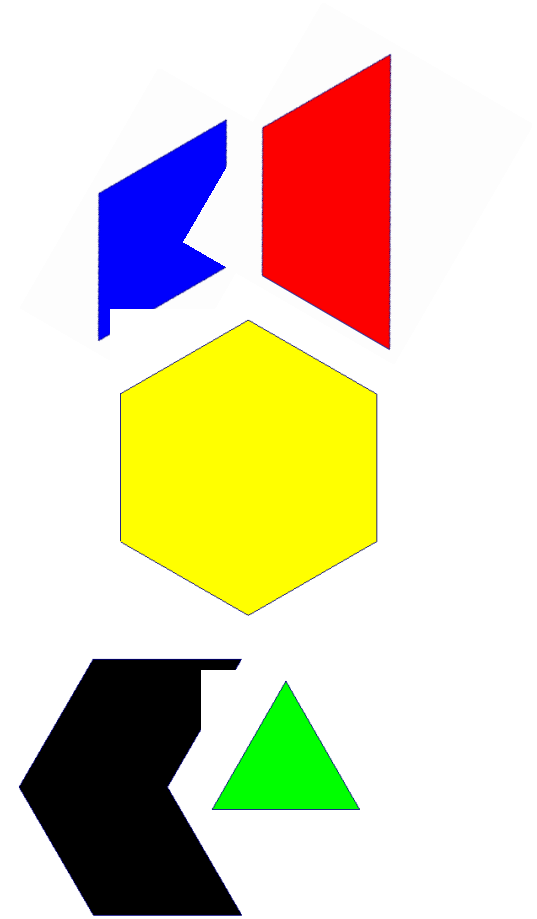
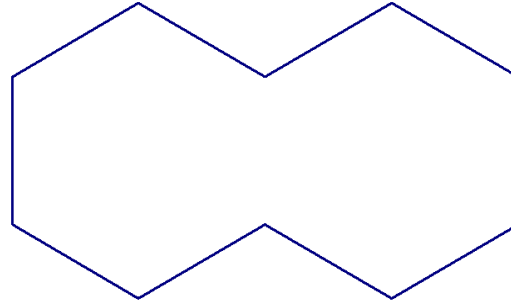
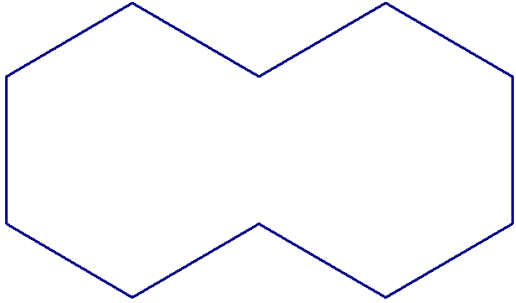
Day 1	$2\frac{3}{4}$ km
Day 2	$3\frac{1}{2}$ km
Day 3	$3\frac{1}{3}$ km

$2\frac{3}{4}$   
 $+$   
 $3\frac{1}{2}$   
 $+$   
 $3\frac{1}{3}$   
 $= 8 + 1\frac{7}{12} = 9\frac{7}{12}$

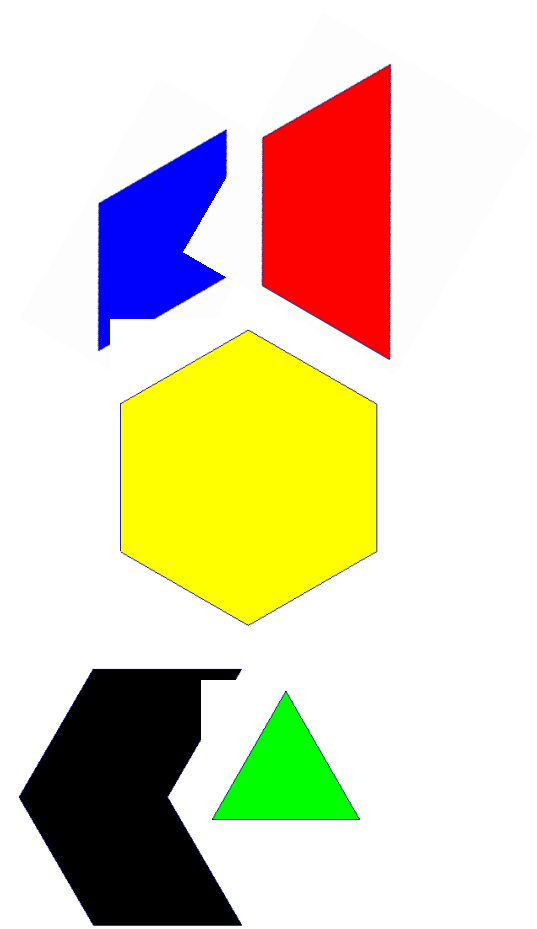
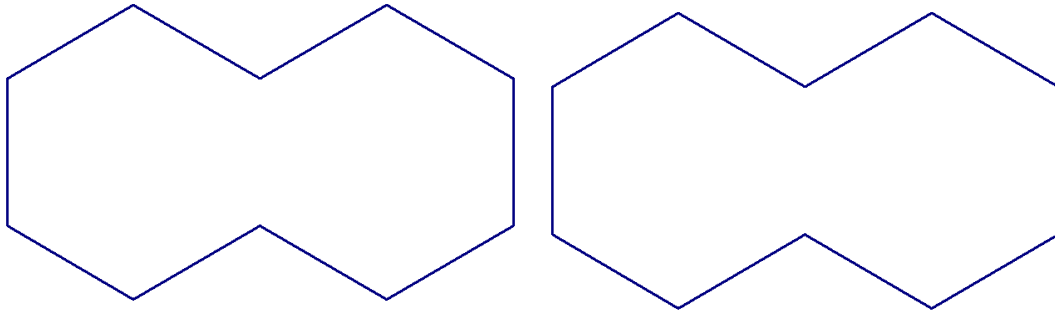
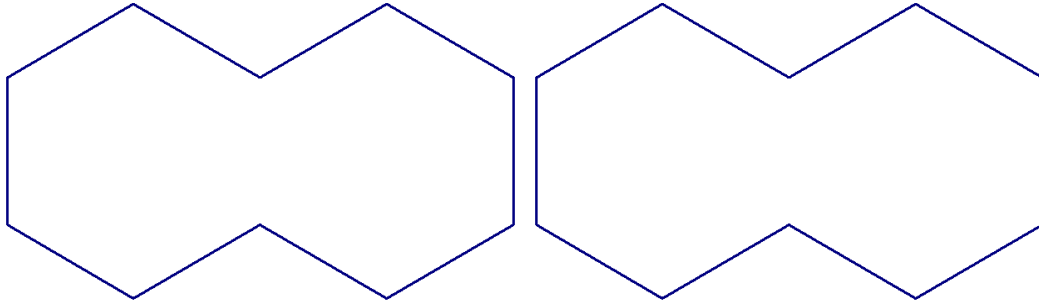
4) Rod has  $3\frac{7}{8}$  m of wood to make picture frames. He used  $1\frac{1}{2}$  m to make one frame and  $1\frac{3}{4}$  m to make another. How much wood does he have left?



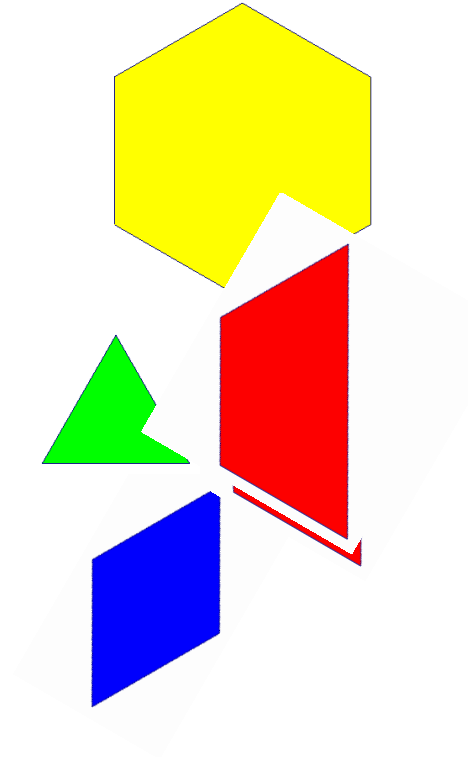
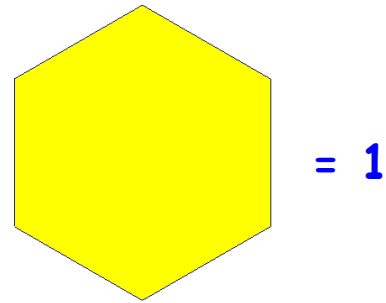
$$\frac{1}{4} + \frac{2}{4}$$



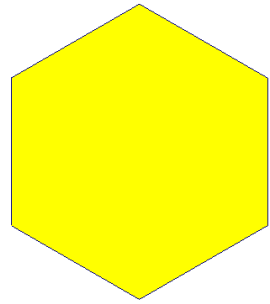
$$\frac{1}{2} + \frac{1}{3}$$



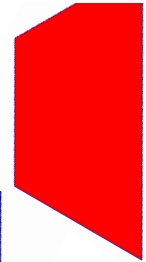
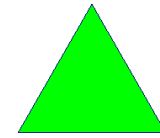
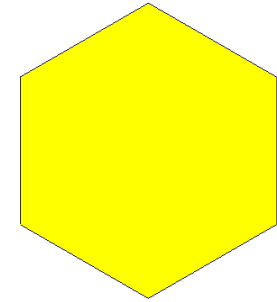
$$\frac{2}{3} - \frac{1}{3}$$



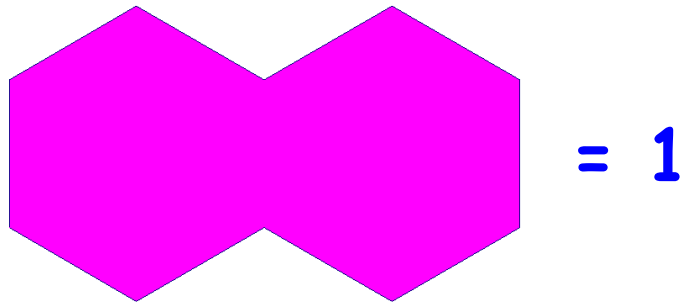
$$\frac{1}{2} - \frac{1}{6}$$



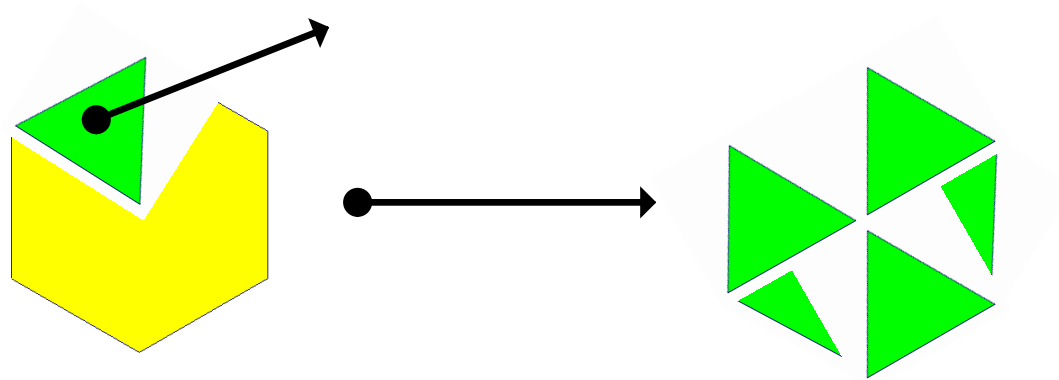
= 1







Explain the model  
symbolically and in  
words.



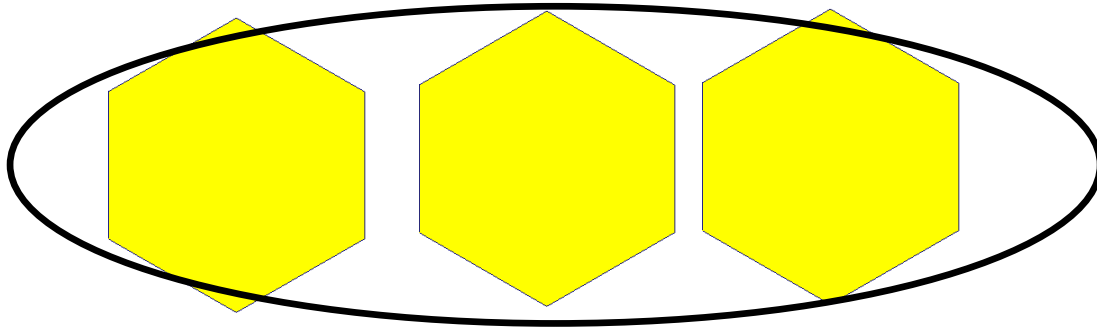
**Use Models and Draw pictures to show the following:**

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

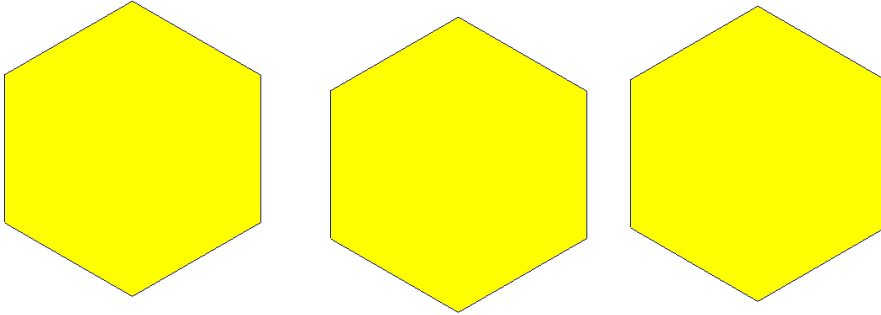
$$\frac{5}{6} + \frac{1}{4}$$

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

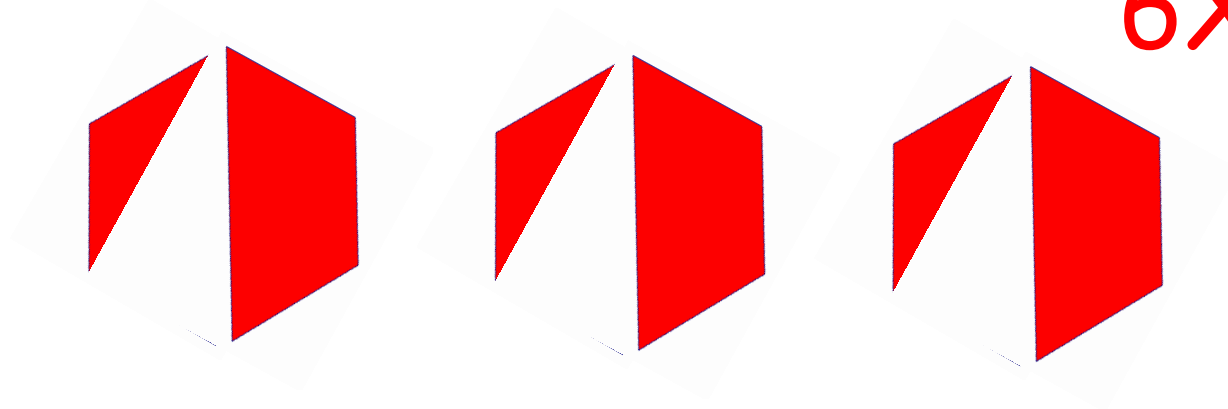
$$\frac{7}{8} - \frac{1}{4}$$



$$\frac{1}{2} \times 6$$

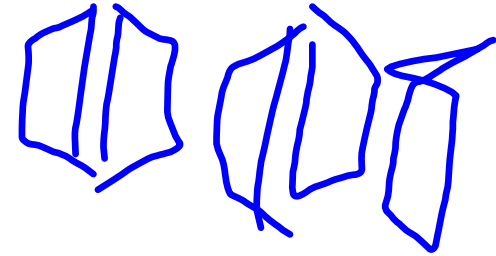
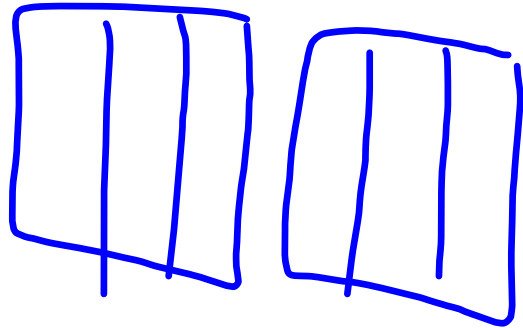
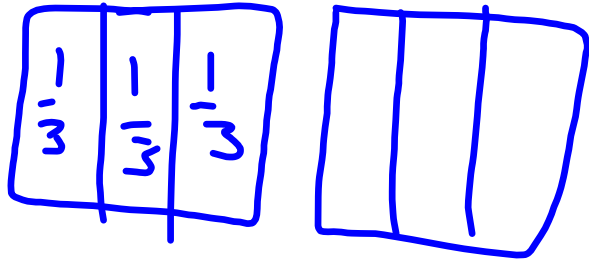


$$6 \div 2$$



$$6 \times \frac{1}{2}$$

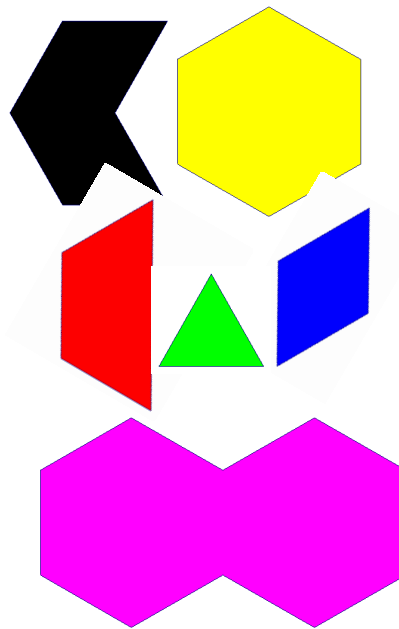
$$4 \div \frac{1}{3} = 4 \times 3 = 12$$



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

$$\cdot 5 \div 2 = 2\frac{1}{2}$$

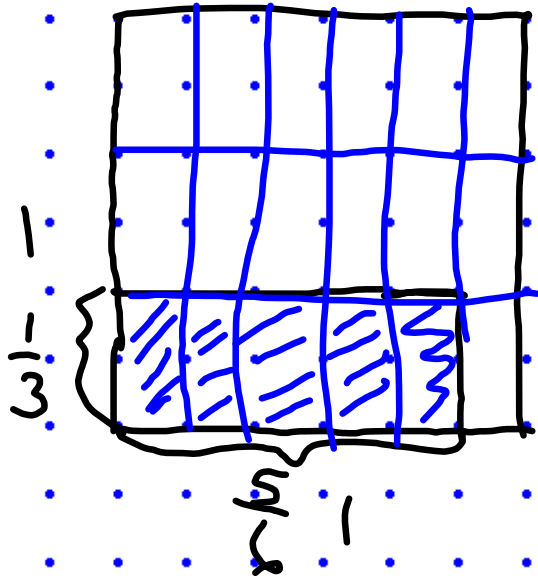
$$\frac{1}{2} \times \frac{2}{3}$$



$$\frac{2}{3} \times \frac{1}{2}$$

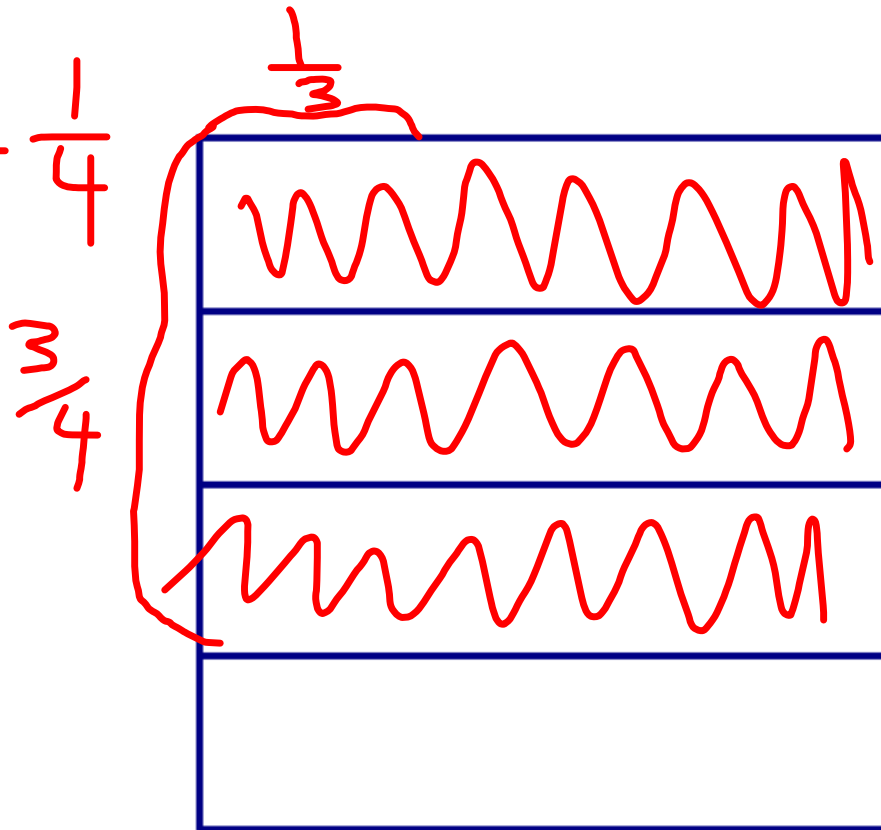
$$\frac{1}{3} \times \frac{5}{6} = \frac{5}{18}$$

$$\frac{5}{6} \times \frac{1}{3}$$

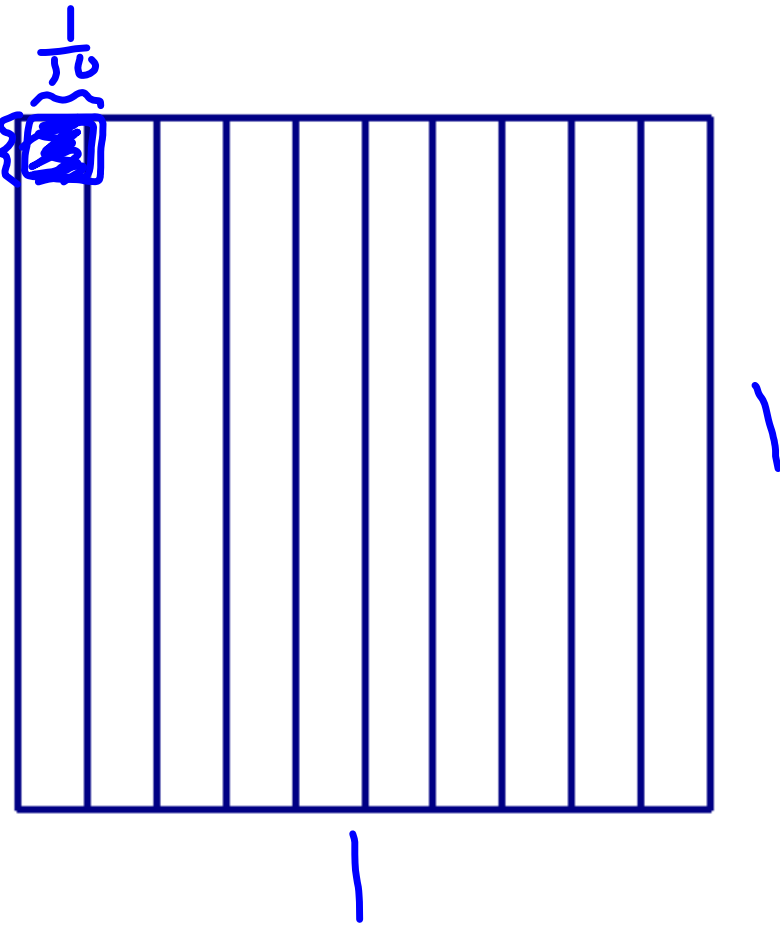


$$\frac{1}{3} \times \frac{5}{6} = \frac{5}{18}$$

$$\frac{1}{3} \times \frac{3}{4} = \frac{3}{12} = \frac{1}{4}$$



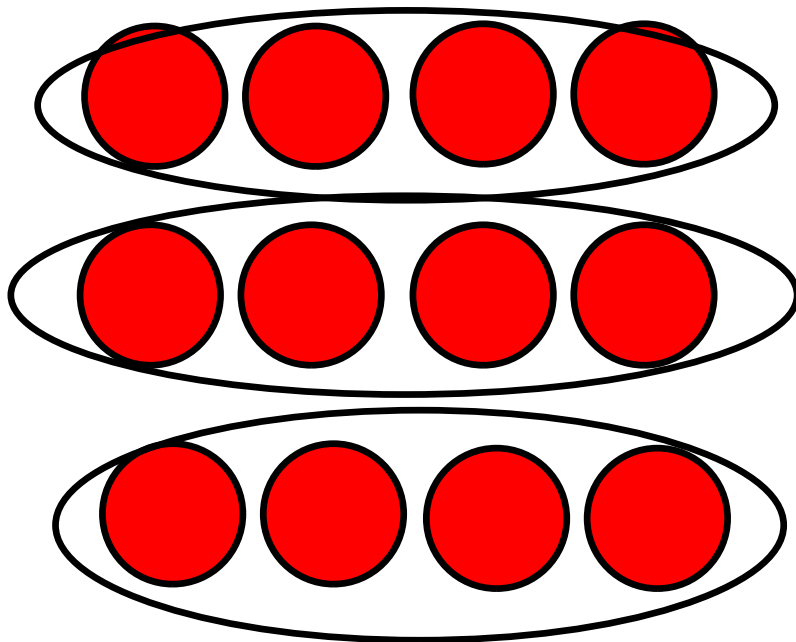
$$\frac{1}{10} \times \frac{1}{10} = \frac{1}{100}$$
$$0.1 \times 0.1 = 0.01$$





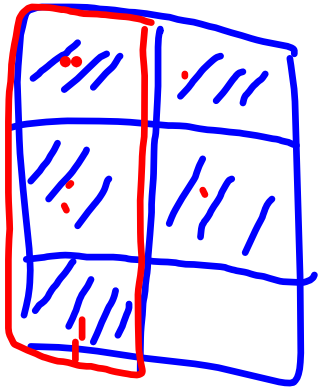
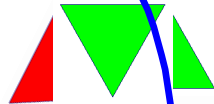
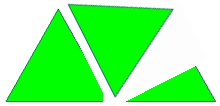
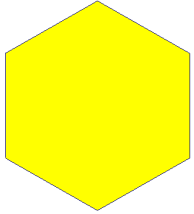
$$12 \div 4$$

How many sets of  
4 are in 12?

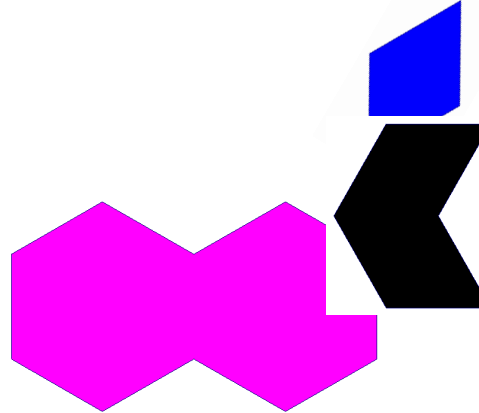


$$\frac{5}{6} \div \frac{1}{2}$$

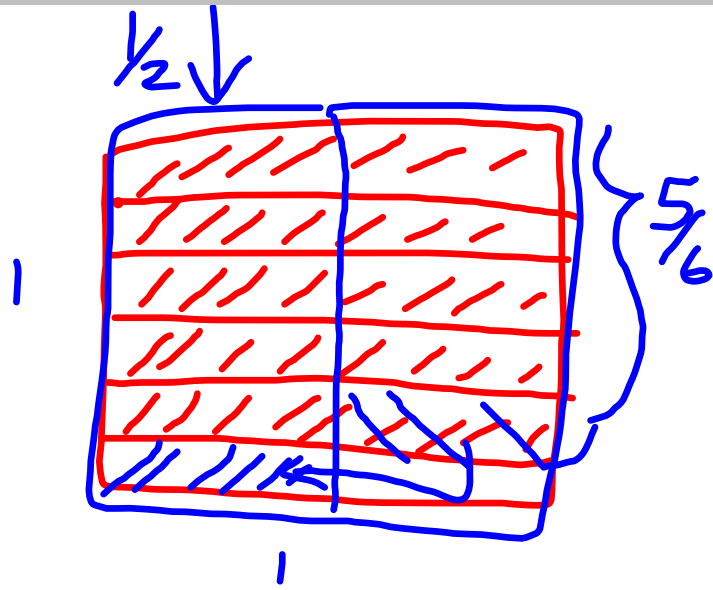
How many sets of one half are in five-sixths?



$$\frac{5}{6} \div \frac{1}{2} = \frac{5}{3} = 1 \frac{2}{3}$$



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

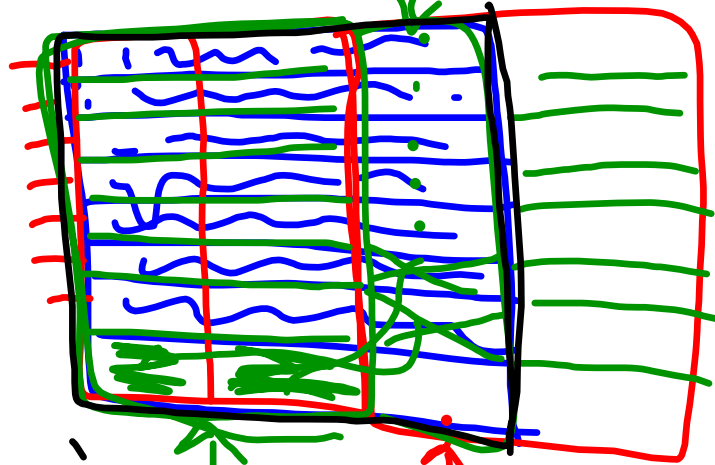


$\frac{5}{6}$   
 1  
 1/2

$$\frac{5}{6} \times 2 = \frac{10}{6} = \frac{5}{3}$$

$$\frac{7}{8} \div \frac{3}{2} = \frac{21}{24} \div \frac{16}{24} = \frac{21}{16} = 1\frac{5}{16}$$

half a set  $\frac{7}{8}$  full



one set  $\frac{7}{8}$  full

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

$$\frac{7}{8} \times 1\frac{1}{2} = \frac{7}{8} \times \frac{3}{2} = \frac{21}{16} = 1\frac{5}{16}$$

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

How many sets of two-thirds are in five?

$$\frac{2}{3} \div \frac{1}{2}$$

How many sets of one half  
are in two-thirds?